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VOL. XVIII. NO. 6.

S W Conrad
1890

PEACE ON EARTH & GOOD WILL TOWARD MEN



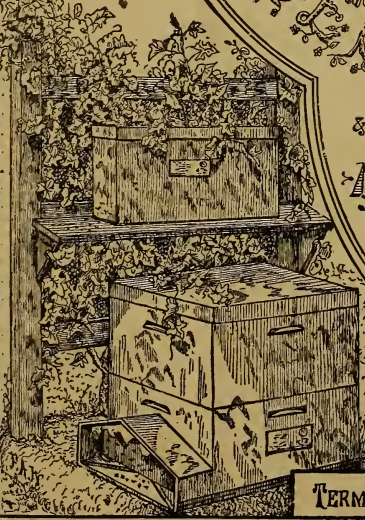
CLEANING
IN

BEE CULTURE

DEVOTED
TO
BEEKEEPING

& HOME INTERESTS.

MEDINA, OHIO
BY
A. I. ROOT



TERMS, ONE-DOLLAR PER YEAR.

W. FAHMYING, DUNELLEN, C.S.

CALVANIZED WIRE

Poultry Netting and Fencing.

The Best Quality on the Market, at Prices as Low as the Lowest.

This shows ACTUAL SIZE mesh of 2-inch No. 19 netting, the kind commonly used for poultry fence. Cut shows the wire a little heavier than actual size.

ALL "G. & B." NETTING
2-in. mesh No. 19, and 2-in. No. 18
IS WOVEN WITH
Three-Strand Twisted Selvages,
Thus being rendered much
STRONGER THAN ALL OTHER BRANDS
which have only two-strand selvages. It is also full standard gauge, while some netting in the market is made of No. 19½, and branded 19.

A 16-page illustrated catalogue of netting and fencing will be mailed free on application. This gives cut and prices of the different sizes, and explains how used.

All the netting and fencing sold by us is of the celebrated "G. & B." brand. We guarantee this to be the best in the market, and our prices as low as the lowest. Dealers will do well to write for prices before ordering elsewhere.

COTTAGE LAWN AND GARDEN FENCING makes the most attractive and best fence. The **WORLD'S WEB-WIRE FENCING** (4-in. mesh) makes the best farm fence. Both are inexpensive. See catalog mentioned above for description and price.

A FEW OF ITS MANY ADVANTAGES.

It is the cheapest, costing less than 75 cts. per rod for posts, staples, and all. It will last a lifetime, and never needs repairing, because it can't get out of order. Being galvanized after it is woven, it will never rust.

It is easily put up and taken down. Ernest has a roll fastened to light stakes, which he has taken down and set up again in a different location in 15 minutes when the ground was soft. It can not be

if you choose. This will prevent small chickens, from getting through, and makes the fence one foot higher. If you want to make division fences, so as to keep different breeds from the same yard, it is better to have a board at the bottom at least one foot wide, so the fowls can not be gossiping through the wire, and pecking at one another. You will notice that one roll makes a yard nearly 40 feet square, and this is plenty large enough for 20 or 30 fowls.

TABLE OF PRICES.

This netting is made with 2, 1½, 1, and ¾ in. mesh, of different-sized wire, and from 6 inches to 6 feet wide, and is put up in bales 150 feet long. That most used for poultry fences is 2-inch mesh, No. 19 wire, 4 feet wide, 150 feet long. This makes 600 sq. feet in a bale.

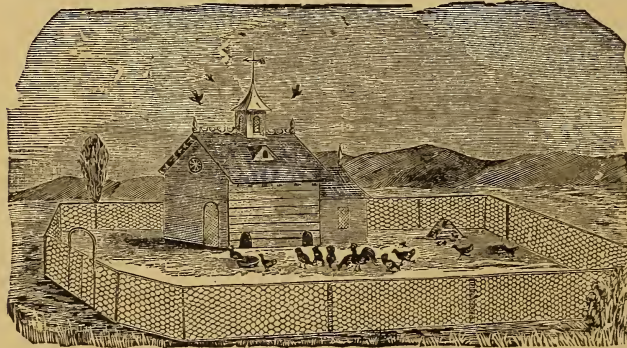
Three years ago we sold 2-in. No. 19 netting, 4 ft. wide for \$6.00 per roll. Next year the price was \$5.00. Last year \$4.50; this year \$4.00; 5-roll lots, \$3.75; 10-roll lots, \$3.60. For 20 or more rolls write for special prices. While the prices have been coming down the quality has been going up so that the G. & B. brand of netting is now the best made. See cut above. Note the following table of prices:

TWO-INCH MESH, NO. 19 WIRE, ANY WIDTH.

Less than a full bale, or any fraction of a bale, 1½¢ per sq. ft.
One bale, at 66½ cts. per 100 sq. ft., or \$4.00 per roll, 4 ft. wide
If one bale is shipped from New York or Chicago add 25 cts. for cartage. More than one bale will be delivered free on board New York or Chicago.
5 to 10 bales at 62½ cts. per 100 sq. ft., or 3.75 per roll, 4 ft. wide.
10 to 20 " " 60 " " " 3.60 " " " "

We ship from New York, Chicago, or from here, with other goods. If you order netting alone it will usually go for less freight charges from New York or Chicago, because rates can be obtained from those points when they can not from here. We keep in stock only the 2-in., No. 19 wire, 4 ft. wide, and all other widths, weights, etc., will have to go from one of the two other places mentioned.

Three-fourths-inch galvanized staples, for putting up the netting, 20 cts. per lb. It takes 1 lb. per ro l



blown down, as the wind goes right through it. On this account you don't need very heavy posts where the fence is used for poultry only. It does not keep out the light and fresh air, so needful to poultry. It is neat and ornamental, and always looks well if properly put up. It is so invisible that fowls can not see the top, and will not fly over. You can see inside, as well as if there were no fence at all.

HOW TO PUT IT UP.

About one pound of staples is needed for a roll of netting. The posts to hold it should not be more than 10 feet apart, and they should be set in the ground at least 2 ft. for a permanent fence. In putting it on the posts, draw the top selvaige tight, and fasten securely with the staples, and afterward draw the bottom down and fasten that. You can put a board a foot wide along the bottom,

A. I. ROOT Medina, Ohio.

Contents of this Number.

Alfalfa	218	Honey, Shipping	218
Bee Brethren—Poem	195	Honey, Retailing	208
Bee-escapes	197	Increase by Dividing	207
Bees, The Best	202	Increase, To Prevent	213
Boardman's Picture	213	Langstroth Hive in Ger'y	211
Brood-frames Top of Hive	208	Marketing Honey	202, 218
Buckwheat Crossing	206	Miller's Fdn. Fastener	200
Caging Queens	203	Pine-tree Honey	210
Carniolans Bad	216	Quilts or Enameled Cloths	214
Colonies Outdoors	209	Report of Clev. Convention	216
Convention, Ohio State	216	Reversing	217
Double Top-bars	204	Shipping Honey	218
Enameled Sheets	215	Swarming, Automatic	215
Extractors, Multiframe	206	Top-bars, Width of	209
Extractors, Reversible	217	Top-bars, Thick	208
Feeding Outdoors	201	Top-bars, Double	204
Fixed Frames	193, 199	Top-bars and Burr-combs	208
Foundation, Fastening	200	Thick Bars	203, 205
Gill's Hives	207	Wells on Hilltops	196
Honey for Dyspeptics	202	Wiring	198
Honey-eaters Wanted	197	Wisconsin Bee-keepers	207

The Bee-Keepers' REVIEW

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free. Send for them, and learn how to get the back numbers cheaply.

W. Z. HUTCHINSON, Flint, Mich.

☞ In responding to this advertisement mention GLEANINGS.

For Perfect Draft, Simplicity, and Durability,

BINGHAM PATENT SMOKERS, AND

BINGHAM & HETHERINGTON UNCAPPING - KNIVES

ARE WITHOUT QUESTION

THE BEST ON EARTH.

Send for descriptive circular and testimonials.

1tfdb BINGHAM & HETHERINGTON, Abonia, Mich.

☞ In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BRETON, ONTARIO, CAN.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete stock of Apian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE—6 colonies hybrid bees in Root Dove-tailed hives at \$4.00 per colony. Address
5-6d T. L. THOMPSON, Blairsville, Indiana Co., Pa.

The SWARM-HIVER

Sent by mail, and the American Apiculturist one year, \$1.50. Circulars and sample copies free.

Address AMERICAN APICULTURIST,
5tfdb Wenham, Mass.

☞ In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,

4-9db Bryant Station, Maury Co., Tenn.

☞ In responding to this advertisement mention GLEANINGS.

SECTIONS, \$3 PER 1000.

Foundation, Alsike, clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST.

M. H. HUNT, Bell Branch, Mich.

1tfdb Please mention GLEANINGS.

☞ In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

☞ In responding to this advertisement mention GLEANINGS.



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for
free catalogue. Address
FRANK A. EATON,
2-13db Bluffton, Ohio.

☞ In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4 1/4 x 4 1/4 sections, in lots of 500, at \$3.50 per 1000.

☞ Parties wanting more should write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞ In responding to this advertisement mention GLEANINGS.

«PRICES ADVANCED»

-ON-

Wire Netting and Comb Foundation.

Wire netting advanced nearly 20 per cent over prices on opposite page. Comb foundation 5c per lb. higher. See particulars in Special Notice column.

A. I. ROOT, Medina, Ohio.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To hear from parties having potatoes, onions, and apples to sell. Onions especially wanted. Consignments solicited. Always ready to buy. Good reference given. 6d
EARLE CLICKENGER, Columbus, O.

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation, for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to
F. DANZENBAKER,
3tdfb 1311 K. St., N. W., Washington, D. C.

WANTED.—To exchange all kinds of wall paper, for honey. 1tdfb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation. 1tdfb
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application. 5tdfb
Avery's Island Apiary, Avery, La.

WANTED.—To exchange fdn. (worker size) for hives and other apiarian supplies, in the flat. 6d
W. O. VICTOR, Wharton, Wharton Co., Tex.

WANTED.—To exchange nursery stock for spot-gun or lawn-mower. GEO. GOULD.
456d Villa Ridge, Pulaski Co., Ill.

WANTED.—To exchange one Acme harrow, new, for Poland-China swine, either sex, or Shropshire ewes, or any thing I can use on the farm or in the apiary. LUTHER PURDY, Killbuck, O. 5tdfb.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tdfb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange Turner and Cuthbert raspberry-plants for pure Italian queens, eggs for hatching, etc. E. R. MILLER,
5-6-7d Garden City, Cass Co., Mo.

WANTED.—To exchange comb honey and Japanese buckwheat for extracted honey and comb foundation. F. WILCOX,
5-6d Mauston, Juneau Co., Wis.

WANTED.—To exchange for supplies, or part payment for Barnes saw, one Twombly knitting-machine, with coarse plate; nearly new. 5d
J. M. MOORE, Holden, Mo.

WANTED.—To exchange 1 Belle City feed-cutter, (cost \$65.00 new), in good condition, also one power saw-table for making bee-hives, for strawberry-plants or peach-trees. EARLE CLICKENGER,
6d Columbus, O.

WANTED.—To exchange one Green's solar wax-extractor, new, for an incubator or Italian queens. G. C. HUGHES,
6tdfb Pipestem, West Va.

WANTED.—To exchange bees and queens, in season, for incubator, fowls, or eggs. 6d
ALBERT L. MARTIN, Leonardsburg, O.

WANTED.—To exchange Monumental 8 x 12 self-inking lever-power printing-press and outfit, cost \$200, for a 3 or 4 H. P. boiler and engine. 6d
J. T. FLETCHER, Clarion, Pa.

WANTED.—To exchange a 24-inch achromatic telescope (value \$10.00) for small foundation-mill, worker size. L. L. ESENHOWER,
6d Reading, Pa.

WANTED.—Black and hybrid queens.
GEO. H. GRACE, Perry, Iowa.

WANTED.—Help on farm, and to care for 18 colonies of bees. State wages wanted by year or eight months. G. J. GRAY, Dell, Ore. 6-7d.

WANTED.—To exchange choice fruit-trees for bees, queens, and supplies. 6d
J. B. ALEXANDER & Co., Hartford City, Ind.

WANTED.—To exchange thin fdn. for honey. 5d
C. W. DAYTON, Bradford, Ia.

WANTED.—Situation as apiarist; 5 years' experience; single; good workman in wood. 6d
CHAS. L. HILL, Dennison, O.

WANTED.—A person of experience in bee-keeping to take charge of an apiary of fifty colonies of Italians for half the profits. Swarming begins the first of April; honey season closes the first of June. J. B. MITCHELL,
6-7d Hawkinsville, Ga.

WANTED.—To exchange plants of Cal. wild flowers and ferns, specimens of woods, and minerals, for strawberry and raspberry plants, back numbers of bee-literature, and supplies. W. C. AIKEN,
Lock Box 214, St. Helena, Cal. 6d

WANTED. To exchange one thrasher and cleaner, two-horse power, for bees—Italian preferred—or offer. L. A. FOSTER,
6d Rockdale, Chenango Co., N. Y.

WANTED.—To exchange job printing, garden and farm seeds, plants, eggs for hatching, and other articles, for bee-supplies or offers. Free lists. 6-8d
H. A. HUBBARD, New Lisbon, Ots. Co., N. Y.

WANTED.—To exchange a complete photographic outfit for a complete new improved Barnes foot-power saw. F. SHILLING,
6d Jewett, Harrison Co., O.

WANTED.—To exchange as good S. C. Brown Leghorns as can be found in the U. S., or eggs from same, for supplies of any kind; or bees and queens. ROBT. C. SMITH, Swisvale, Alle. Co., Pa.

WANTED.—To exchange an accordion, white Holland turkeys, and Rose Comb American Dominique Cockerels, for a double-barreled breech-loading shot-gun, 32 or 38 caliber revolver, repeating rifle, or offer. WM. ELWICK, Decorah, Ia. 6d

WANTED.—To exchange a handsome male Scotch collie for Italian bees. ROBERT WALLACE,
6d Turkey, Mon. Co., N. J.

I WANT YOU

To send for illustrated catalogue of Albinos and Italian Queens and Bees for 1890. Address
A. L. KILDOW & BRO., Sheffield, Ill.

MURDER! MURDER! MURDER!

Yes, all high prices in bee-supplies murdered at R. E. Smith's Bee-hive factory, Tilbury Center, where you can buy all kinds of bee-supplies at rock-bottom figures. 300 swarms of bees for sale. Bees by the pound or nucleus; Queens, Comb Foundation, Honey-Extractors, Smokers, and the Excelsior Hive—20 years in use. Send for our 8th annual price list, now out. R. E. SMITH,
Box 72, Tilbury Center, Ont., Can.

In responding to this advertisement mention GLEANINGS.

New Orleans Apiaries for 1890

Orders are now taken for early ITALIAN and CARNIOLAN guaranteed Queens. Send for price list of Best and Cheapest Apiarian Supplies offered. Address
J. W. WINDER,
6tdfb 572 Magazine St., N. O., La.

In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
OTTO KLEINOW,
6tdf No. 150 Military Ave., Detroit, Mich.

FOR EARLY ITALIAN QUEENS SEE W. H. LAWS' advertisement, Mar. 1.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—Honey.—Comb honey is selling well at 12@13 for best grades. Receipts are fair for the season; but as it will sell slowly after this month, all having any to market here should forward it now. Dark combs are slower sale at 9@10; extracted dull, but prices are about the same—6@8.

Beeswax, 25@27, and small offerings.

R. A. BURNETT,
Mar. 8. 161 So. Water St., Chicago, Ill.

ALBANY.—Honey.—The demand is all that could be expected at this season of the year, and prices remain unchanged. We quote: Clover, 12@14; mixed, 10@12; buckwheat, 8@10; extracted, light, 7@8; dark, 6@7.
C. McCULLOCH & Co.,
Mar. 10. 339 Broadway, Albany, N. Y.

KANSAS CITY.—Honey.—The demand for honey is improving a little, but no improvement in prices. We quote white 1-lb. sections at 11@12; 2-lb., 10@11. Fall, 1-lb., 9@10; 2-lb., 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, 22.

CLEMONS, CLOON & Co.,
Mar. 7. Cor. Fourth and Walnut Sts., Kansas City, Mo.

ST. LOUIS.—Honey.—We quote comb, 12½@13; dark, 10@10½; extracted, bright color, 5¼@5½; dark, 4½@5. *Beeswax*, 24, for prime.

D. G. TUTT GROCER Co.,
Mar. 10. St. Louis, Mo.

CINCINNATI.—Honey.—Demand for extracted honey is good, especially from manufacturers, at 5@8 on arrival. There is a fair demand for comb honey at 12@15 for best white, in the jobbing way.

Beeswax.—Demand is good, at 20@25 for good to choice yellow, on arrival.

CHAS. F. MUTH & SON,
Mar. 7. Cincinnati, O.

KANSAS CITY.—Honey.—Demand is very light. Fancy 1-lb. comb, 13; good white, 12; dark, 8@10; 2-lb. comb, white, 10@11; dark, 8c. Extracted, white, 6@7; dark, 5@5½.—*Beeswax*, 22.

HAMBLIN & BEARSS,
Feb. 26. Kansas City, Mo.

NEW YORK.—Honey.—Strained and extracted, dark, in demand, and there is no stock of it; supplies are sold immediately on arrival. We quote same at 5½@6½, or at 72 to 78c per gallon. Of comb honey we have only a few small lots of fair and mixed grades left, which are selling slowly. We could place several hundred crates of strictly fancy white, in cartons, at about 13@15.—*Beeswax*, 25; demand good.

F. G. STROHMEYER & Co.,
Feb. 21. New York.

BOSTON.—Honey.—We quote: Fancy 1-lb. comb honey at 16c. Any thing off grade sells considerably below this amount: 2-lb. combs, 15c for the best quality. Extracted, 7½@8½. No beeswax on hand.

BLAKE & RIPLEY,
Mar. 11. 57 Chatham St., Boston, Mass.

SAN FRANCISCO.—Honey.—Honey in fair demand. Extracted, 5½@6½; comb honey, best, 12@14; ditto second quality, 8@11.—*Beeswax* is scarce at 21@22.

SCHACHT, LEMCKE & STEINER,
Mar. 4. 16 & 18 Drum St., San Francisco, Cal.

COLUMBUS.—Honey.—Honey still selling slowly at 14@15 for fancy white clover. Dark and inferior grades meet with no sales. Extracted honey, dull. Trade in general, quiet.

EARLE CLICKENGER,
Mar. 8. Columbus, Ohio.

MILWAUKEE.—Honey.—The demand for honey is very good, and supply fair. Can now quote white 1-lb. sections, 12@13, and if absolutely perfect sometimes can obtain 14c; 2-lb. sections, white, 12@12½; 1-lb., dark, 10@11; 1-lb., old, 8@9. Extracted, ½ bbl. and bbls., white, 7@8; pails and tin, white, 8@8½. Bbls. and ½ bbls., dark, 6@6½. *Beeswax*, 22@25.

A. V. BISHOP,
March 13. Milwaukee, Wis.

DETROIT.—Honey.—Comb honey is selling slowly at 11@13c; stock not large. Extracted, 7@8. *Beeswax* firm at 25c.

M. H. HUNT,
March 10. Bell Branch, Mich.

FOR SALE.—1200 lbs. extra-fine orange-bloom honey, in bbls. of 360 lbs., at 8c per lb., or in 60-lb. can, \$5.00. Package free. This honey will give satisfaction every time.

MODEL B. HIVE Co.,
Pure Honey and Bee-Keepers' Supplies.
W. Philadelphia, Pa.

WANTED—Honey, both comb and extracted. For particulars, address
O. H. HYATT,
Shenandoah, Page Co., Iowa.

REVIEW OUR 1890

16-page circular of bee-keepers' supplies, etc. Also note prices of our choice strain of Italian bees. Circular free. Address **JNO. NEBEL & SON**, 5tfdb High Hill, Mo.

OWING to rising prices of beeswax we now quote an **Advance of 5 cts.** on comb foundation over February prices, both wholesale and retail. **Beeswax Wanted** in any quantity. 6-7-8d
DADANT & SON, Hamilton, Hancock Co., Ill.

H. G. FRAME, NORTH MANCHESTER, INDIANA, Breeder of Italian and Carniolan Queens. Bees by the pound and nucleus. Price list free. 5tfdb Reference First National Bank.

BEES SEND for a free sample copy of the **BEE JOURNAL**—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address 16tfdb **BEE JOURNAL**, Chicago, Ill.

BEES FOR SALE
COLONIES,
NUCLEI,
AND QUEENS,
at living rates. Send for circular and price list to
C. C. VAUGHN & CO.,
4tfdb Columbia, Tenn.

In responding to this advert. mention GLEANINGS.

Established 1878.
SMITH & SMITH,
Wholesale and Retail Manufacturers of
BEE-KEEPERS' SUPPLIES.
KENTON, OHIO.
Price List Free. Mention Gleanings.

BEES. South Florida. QUEENS.

Eight years' experience. I am better prepared than ever before to fill orders promptly, and guarantee satisfaction and safe arrival. Tested Italian queens, \$1.50; untested, 75c, or \$8.00 per dozen. I make a specialty of shipping in time for Northern fruit-bloom, four-frame (L. and S. wired) nuclei, full of bees and hatching brood, with queen, at \$4.00. Ready to mail or ship, as climate permits.

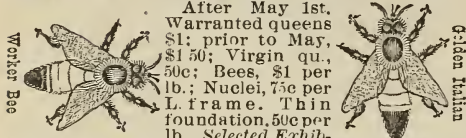
3tfdb LUTHER W. GRAY, Orlando, Fla.

In responding to this advertisement mention GLEANINGS.

SUPPLIES!
Send for circular—free. **WALTER S. POWDER**,
175 E. Walnut St., Indianapolis, Ind.
5tfdb (Successor to F. L. Dougherty.)

SECTIONS.
\$2.50 to \$3.50 per M. Bee-Hives and Fixtures cheap.
NOVELTY CO.,
6tfdb Rock Falls, Illinois.
In responding to this advertisement mention GLEANINGS.

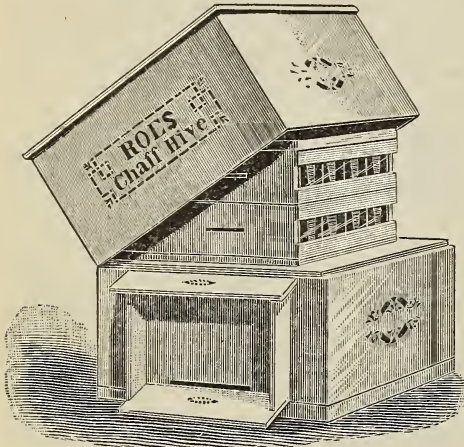
FOR SALE.—A few stocks of pure Italian bees in the L. portico hive, on 7 frames, at \$5.50, or two stocks for \$10.00.
C. G. FENN,
6d Washington, Litchfield Co., Conn.

1884. TAR-HEEL APIARIES. 1889.

After May 1st, Warranted queens \$1; prior to May, \$1.50; Virgin qu., 50c; Bees, \$1 per lb.; Nuclei, 75c per lb. Selected Exhibiting and Breeding Worker Bee. Queens, \$5. Sample of 4 and 5 Banded Bees, and Red Drones, 10c. Finest in the U. S. Price list free. SMALL ENGLISH YORKSHIRE PIGS: "Duke of Goldsboro, No. 861," Duchess of Goldsboro, No. 1523, "Lady Wayne, No. 1529," heads my herd-pigs: \$6 each; \$11 per pair. 6-7 9d

ABBOTT L. SWINSON, Goldsboro, N. C.

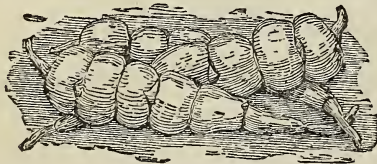
In responding to this advertisement mention GLEANINGS.



I am selling Chaff Hives away down low. Send for my price list.

6d **J. A. ROE, Union City, Ind.**

In responding to this advertisement mention GLEANINGS.

RARE! NOVEL! GOOD! CHEAP!

A meritorious novelty, white as snow, first-rate eating, easily grown and kept, wonderfully productive. Free catalogue has fuller description of it, and prices (low) of Novelties and standards in SEEDS and PLANTS, also QUEENS. Send 30c for 5 tubers of STACHYS, as above; a root of the beautiful fragrant CINNAMON VINE, which grows up rapidly each spring; a packet of POWELL'S, the most productive pole bean; of HONEY, a choice sweet corn; of FLOWER SEEDS, over 100 varieties, mixed, and a small tuber of POTATUCK, a fine new early potato. All postpaid for only 30c. Five collections for \$1.00.

CHRISTIAN WECKESSER, Marshallville, O.

Mention this paper.

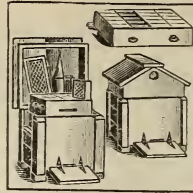
6-7d

STRAWBERRY-PLANTS.

A No. 1 plants, true to name, from new ground. Jessie and Bubach, 75c per hundred, \$5.00 per thousand. Crescent and Sharpless, 50c per hundred, \$3.00 per thousand. By mail, add 20c per hundred for postage. **F. S. McCLELLAND & BRO.,**

Box 379, New Brighton, Pa.

In responding to this advertisement mention GLEANINGS.

**HILTON'S Improved Chaff Hive AND T SUPER.**

The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.

CEO. E. HILTON, Fremont, Mich.

5-10db

In responding to this advertisement mention GLEANINGS.

BASSWOOD TREES.

Basswood-trees 1 to 3 feet high.....\$ 1 50 per 100.
" " 1 " 3 " " 10 00 " 1000.
" " 3 " 5 " " 2 50 " 100.
" " 5 " 5 " " 20 00 " 1000.

-6d Address **HENRY WIRTH, Borodino, Onon. Co., N. Y.**

In responding to this advertisement mention GLEANINGS.

QUEENS! EARLY! QUEENS!

Italian queens promptly shipped after March 15. Tested queen.....\$2 00 Untested\$1 00
Three Untested Queens.....\$2 75

Two-frame Nucleus with Untested Queens after April 1st. \$2.50. We use the Simp. frame, and guarantee safe arrival, etc. Circulars free. Make money orders payable at Clifton. Address 5tfdb COLWICK & COLWICK, Norse, Bosque Co., Texas.

In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS AND BEES,

Bred the coming season from Imported mothers, will be ready to send out the first of June. Send for free circular. to **JOHN ANDREWS, 1-6db Pattens Mills, Wash. Co., N. Y.**

In responding to this advertisement mention GLEANINGS.

BUSINESS.

I will be prepared by April the 10th to ship untested queens bred from my fine strain of non-swarming Italians. These bees are gentle, prolific, and fine honey-gatherers. Satisfaction and safe arrival guaranteed. If by chance a queen should prove not good I will gladly replace her when notified of the fact. **R. B. WILLIAMS, 6-7-8d Box 72, Winchester, Tenn.**

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either; per setting, 75 cts.; 26 at one time, \$1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

In responding to this advertisement mention GLEANINGS.

BEAUTIFUL BEES are always pleasing to the eye. GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a marked degree, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL, 5tfdb Spencerville, Mont. Co., Md.**

In responding to this advertisement mention GLEANINGS.

CONSIGNMENTS OF HONEY

And **BEESWAX** solicited. Send samples, state particulars, and mark from where samples come. **HOGG & PHIPPS, 6-7-8d 264 Willoughby Ave, Brooklyn, N. Y.**

CARNIOLAN QUEENS AND BEES.

I make this race of bees a specialty. Untested queens after June 1st, \$1.00 each. Send for circular and price list to **A. L. LINDLEY, 6tfdb Jordan, Ind.**



Vol. XVIII.

MAR. 15, 1890.

No. 6.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00;
10 or more, 75 cts. each. Single num-
ber, 5 cts. Additions to clubs may be
made at club rates. Above are all to
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than 90 cts. each. Sent postpaid, in the
U. S. and Canada. To all other coun-
tries of the Universal Postal Union, 18
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NOT of the U. P. U., 42 cts. per year extra.

"WE BEE BRETHREN."

BY REV. NORMAN PLASS.

Now you jes' turn to *Genesis*—
The chapter I don't mind;
But that don't make no difference,
'Cause some one else couldn't find
The place like me, so when he did,
Rememberin' he'd fergot,
He writ along on top the page
'Bout "*Abraham and Lot*"—
Jes' look fer that, and read the page,
And pretty soon you'll see
How Abraham and Lot fell out
'Cause they could not agree.

It wasn't *them* that quar'ld, tho',
But 'twas their *hired men*,—
Because they had so many cows
And calves, I s'pose, that, when
They came to water at the well—
The only well they had—
Each man was bound to be there fust,
And got eternal mad
Because some other critter came
When he had drawn the water,
And gulped it down as unconcerned
As tho' she thought she'd orter.

Then each hired man, like boys when mad,
Would run and tell his boss,
And 'twixt them was an endless strife
That worked to each one's loss.
Now, Abra'm didn't like to quar'l,
And so he said to Lot:
"If me an' you can't peaceful be,
Then we had better not
Attempt to live tergether more;
So, now, we'll separate;
You choose what ground *your* cows can pick,
And on the rest *mine*'ll bait."

I s'pose that, in them early days,
There was no irrigation;
And when one well was all they had
It stirred up irritation.
Jes' so to-day we sometimes must
Drink at a single well;
And when we tread each other's toes,
Sometimes—it's sad to tell—
We claw and hook, and strike and kick,
And stir up such a battle
That any one that's looking on
Can't tell the men from cattle.

But now you run the story thro',
And you'll diskiver whether
They both got on in fust-rate style
When they didn't live tergether.
What I am driving after now,
Is not the cows a-tetherin',
But tho'ts that Abraham divulged
When he said, "*We BEE brethren*."
That was the word he said to Lot;
And when he'd spoken it,
One looked at t'other, and thenceforth
They *didn't quar'l* a bit.

Whether their *bees* were troublesome,
And stung each other's cattle;
Whether they swarmed around the troughs
And helped bring on the battle,
The sacred narrative don't say,
But only tells us that
When Abram said—"BEE brethren *we*,"
It ended all the spat.
That's all we *know* about their bees—
Jes' what them words disclose;
But they reveal to us the fact
That *bee-men can't be foes*.

Now, when we find that there are things
That make our feelin's roil,

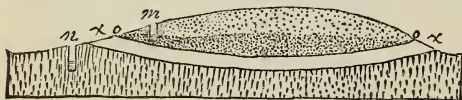
We should be keeferful what we say
 Lest we some friend revile.
 What if we ain't jes' quite agreed?
 Don't git so pow'rful stir'd;
 "Bee brethren," we, like Abraham,
 Should speak the soothin' word.
 It sorter seems to me, if we'd
 Observe the "golden rule"
 We sometimes would our neighbor praise,
 And own ourself the fool.

WELLS ON HILLTOPS, ETC.

PROF. KOONS GIVES US SOME INSIGHT IN REGARD
 TO SUBTERRANEAN WATER.

ONE remark in your editorial following Prof. Cook's article in GLEANINGS for Jan. 15, on "Bad Well-water," calls up a very important principle in geology. Your sentence referred to a statement of the well-driller. "They said, that, although they could not understand it, yet practical experience seemed to decide that there is just as good a chance of getting water on high ground, or even on a hill, as anywhere else." The majority of men think of the "soil water"—that is, the water in the earth's crust—as standing at a uniform level, and that, going from the top of a hill forty feet high to the adjacent valley, will save just so much digging to secure water. A very large percentage of the water falling to the earth, in the form of rain or snow, sinks into its surface; the amount being determined by the character of the surface upon which it falls. For example, a sandy soil will absorb much more than a compact clay; and of the water thus absorbed, a part is again returned to the atmosphere by evaporation, while the remainder is retained in the soil, or finds its way to the surface again at lower levels, in the form of springs, wet and swampy places, directly into brooks or rivers, or even into lakes and the sea itself.

The water thus sinking into the surface, and becoming what is commonly called "subterranean water," if there were no interfering conditions, most naturally would find a common level, and the well-digger would be compelled to bore the extra forty feet spoken of above; but there are a number of circumstances that prevent this. For example, there may be the conditions illustrated in Fig. 1, where $x x$ is a clay layer sufficiently compact to



hold water like a basin, or the layer may be an impervious stratum of rock, and hence all that falls upon the hill h , and is absorbed, finds its way down into this basin, which may be yards, rods, or even miles across; and then the water appears again in the form of an overflow at the border o ; may be in the form of a spring, or simply a wet place or places about the border of the hill.

A well dug at m would not have to go to the level of the water at n , because the water, by the peculiar conformation, is held much higher at the former locality than at the latter.

Another condition, illustrated by Fig. 2, also bears upon the subject. It illustrates well-known conditions on the south side of Long Island. m is the

ocean, from which the island rises gradually to the north at a grade of about twenty feet to the mile; and actual observations, by digging wells, shows that the level at which water is reached is not on a level



with the ocean, but, beginning at low tide, the subterranean water is reached on a plain o, o , which rises about twelve or twelve and one-half feet to the mile, so that, at the distance of one mile from the ocean, as at b , water is found at about seven and one-half feet below the surface, although the island is twenty feet above low tide. At two miles from the sea, at c , the surface is forty feet above tide, yet water is found at a depth of fifteen feet; and three miles from the ocean-border, at d , where the island is sixty feet high, the water in the wells stands within about twenty-two and one-half feet of the top; and this same law holds good on to the center of the island, six miles from shore.

Thus it is seen that the water-plane, o, o , has an inclination, yet not so great as the surface of the ground, and may approximately conform to it, as illustrated by Fig. 3.



In these latter cases, and, indeed, to a certain extent, in Fig. 1, the water is held at a given height by its friction among the grains of sand, pebbles, etc., aided somewhat by capillary attraction also; so that the plane at which the subterranean waters are reached is a little higher at the center of the basin, Fig. 1, than at the borders—the water-plane, even here, imitating the undulations of the earth's surface, yet not rising and falling, see o, o, o , Fig. 3, to the same extent as the surface itself.

These are but few of the multitudes of conditions, under this complex subject, affecting the depth to which wells must be sunk in order to secure a constant supply of water; and only by a thorough knowledge of the underlying conditions in any given locality is it possible, accurately, to predict the depth to which a well must be sunk.

B. F. KOONS.

Connecticut Agricultural School, Jan. 25.

Many thanks, friend K. I was well aware of the point you make in the fore part of your article, but I had never before seen any thing in regard to water held in sand and gravel by capillary attraction, although I believe something of the kind exists in our low grounds; and by digging down from five to ten feet almost anywhere, we find wet gravel and sand, even during a severe drouth; and by sinking a cavity, water collects in sufficient quantity to water our plants. Now, I have had an impression that this water could still be held in the gravel, even though an underdrain were laid to carry it off. Our best celery ground is over such a gravelly

and sandy deposit; and during dry seasons plants seem to grow right along, without any need of rain. While at Green Bay, Wis., our good friend J. M. Smith informed me that an artesian well had been sunk there that gave water with sufficient pressure to raise it in pipes something like 80 feet. This location is also on the lake shore, where there are no hills of such a height within many miles.

BEE ESCAPES.

HOW TO MAKE AND HOW TO USE.

THE editor's foot-notes on bee-escapes in GLEANINGS (see p. 100) would seem to call for more light on this subject, as *he*, even *he*, has not grasped the full meaning of the term and benefits to be derived. The horizontal escapes recently described by both Mr. D. and myself have not been thoroughly enough tested to warrant much being made over them, and may prove, like many plausible inventions that are incubated in the winter months by pleasant firesides, to fail to materialize under a July sun. Being anxious to have the new escape tested as soon as possible I have sent models to practical bee-keepers in Florida, and they promise to report as soon as they can. Tests can be made in this climate almost any time during winter—especially this one, with feeders, sections, and extracting-combs that need cleaning out, etc., but this is not a fair test, as there is no doubt about any style of escape working to perfection under such circumstances. What we want is an escape, simple and cheap, that will lead the bees out of finished or full supers down into empty ones or into the brood-chamber when the season is over, and one that is so simple and cheap that anybody can make. Please bear in mind, that the word super is applicable to extracting-cases as well as section-cases or super, and our editor must confess he has been very slow to "get hold" of the extracting part of it. You could not tell my extracting-supers from section-supers without looking inside. Friend Langdon and many others have used the vertical single-cone escape with entire satisfaction, and I am satisfied that this style of escape has not been much improved, taking into account the cheapness and simplicity of construction. Just think a minute. Take a board as long and as wide as your hive; arrange a bee-space on one or both sides, if necessary, to suit the hive or super you use. Bore a 2½-inch hole in the brood so it will come directly over the center of a section near the middle of the super. Cut a piece of green wire cloth 6 inches square; form it into a cone over the point of a 1½-inch round stick sharpened like a lead-pencil; tack the cone, which should be about three inches long, over the hole, and the escape is complete for either extracting or section supers. You will understand, an emptied super will have to be used for this escape-board, when it is placed between two extracting supers; also when the last super is to be taken off after the honey-flow has ceased. Now, when the escape-board is to be placed between a super of full sections and one with empty sections, take out one empty section (before the case is put on the hive), so the cone will have a space to drop into (I hope I make this quite clear). Place the super of full sections and bees on, and the bees will pass down into the super of empty sections, and very few will find their way back.

Now, I do not think that anyone would think of "fastening bees out of supers containing filled combs" (if the combs in the super are filled what need of bees in it?) without putting empty combs under the escape. J. S. REESE.

Winchester, Ky., Feb. 3.

Please do not be too severe on your old friend A. I. Root, friend R., even if he has not grasped all that is accepted of our new invention. The idea that I had in mind was this: When we decided that the upper story of the hive is ready to extract, we wish all the bees out of the way. With a bee-escape, however, it must take some little time, I should say three or four hours, or over night. If during the night, no honey will be lost, as a matter of course. During the day, when the hive has the brood-chamber already crowded with honey, there would certainly be a loss unless the bees could be employed on another set of combs, as you suggest. Now, even if the bee-keeper has an extra set of combs, some manipulation, as you suggest, is necessary. But has any one of our readers besides Mr. Langdon removed the bees from the combs for extracting, with a bee-escape? I know that we lose honey when we interrupt the bees; for whenever we used to extract our colonies that were kept on the scales, there would be a loss. Sometimes the bees that were shaken from the combs would cluster in a body on the outside of the hive, and very often would not get to work until the next day; and this very often resulted in making the yield next to nothing, from a hive that had been bringing in from 5 to 10 lbs. per day right along. Some colonies will go to work at once after being extracted from, I am well aware, but others will not. In working for comb honey it would be a much simpler matter to put a new crate, or a partly finished one, under the one that is ready to come off.

WANTED—HONEY-EATERS.

SHALL WE SHIP OUR HONEY TO THE CITIES?

TEN million people to eat honey! I thought I would not be too "cheeky" in the first call; but when this is answered, I will call for more. "Blessed Bees" was written to open up a market for supply-dealers, and now its readers want a demand for their product. Is there any thing unreasonable in this? What we want now is consumers, and not producers of honey. Judging from the price of this sweet, during the last score of years, producers have increased in a much greater ratio than consumers have. "What are you going to do about it?" Is there no help for it? I believe there is, if every producer of a pound of honey would put his own "shoulder-blades" to the wheel.

I know bee-keepers who tell with pride that they never sold a pound of honey at home. I know a bee-keeper who lives at a county seat of probably 1500 inhabitants who exultingly says: "I never sold a pound of honey in my town. I ship it all off in barrels." We have too many bee-keepers of this persuasion; and may their shadow grow less. Too little business to sell honey? Can't peddle. Oh, no! You ship your honey to large marts, where it accumulates until the price gets down lower than ze-

ro, and is thus quoted in the price lists of dealers; and by to-morrow every little one-horse grocery, from Manitoba to the gulf, will be quoting it. I never shipped any honey except once, and I humbly beg the bee-keepers of the country to forgive this indiscretion, and I will promise to do so no more. I employed two young men to pack and ship this honey. One of them was a natural-born peddler; and if I had set him to selling in lieu of shipping, I should have had my money sooner, and more of it.

I embrace every opportunity of bringing honey to the front as an article of food, and every one can create a demand if he will only "try, try again." I think there are but very few townships, six miles square, that produce more honey than they can consume, in the whole country, if it were thoroughly canvassed. I should like to belong to a guild of honey-producers who would bind themselves not to ship until their own neighborhood was supplied.

I'm glad that I stirred up Bro. Doolittle. I was wakeful last night, and I could see a picked crow, with only one tail-feather left. If he had written thus plainly before, I should not have lost my bees by following him; and now novices will be benefited. Many writers imagine that their readers know as much about bees as they do, hence failures.

Peoria, Ill., Mar. 6.

MRS. L. HARRISON.

Mrs. H., right in line with your remarks, friend Danzenbaker, of Washington, D. C., who is now making us a visit, just remarked that he had recently sold his orange-grove in Florida, consisting of 22 acres. When I asked him if he produced orange-blossom honey, he said he had as much as 50 lbs. last season, and that he had sold it all for 25 cts. per lb.

"Why, friend D., where in the world did you find a market for the orange-blossom honey at 25 cts. per lb.?"

"Why, right where it was gathered, of course. I always sell my honey where it is gathered, and I believe I get a better price for it, as a rule, than I could get by sending it away off somewhere and having a great big freight-bill to pay."

IMPROVEMENTS IN BROOD-FRAMES.

IMPORTANCE OF WIRING COMBS, ETC.

Friend Root:—A few days ago I sent you one of my improved brood-frames, and gave you some of my experience with the thick top-bars and brace-combs. I will now explain some other important features of this frame, which I think will commend themselves to all. I see that some are contemplating doing away with wire in the frames, as well as with the boney-board, by the use of heavy top-bars. I am satisfied we can never dispense with wire in our brood and extracting combs.

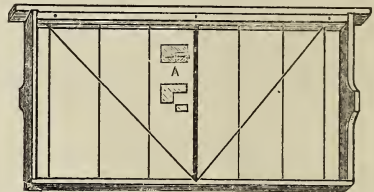
When combs contain sealed honey, and they are exposed to frost, they are almost sure to crack, and, if not wired, they will break out. Unwired combs also often break down from the effects of heat.

The breakage caused by dropping combs into the hive, or by shaking off bees, or by extracting the honey, far more than balances the expense of wiring. Another point in favor of wiring: We are enabled to fill eight frames with a single pound of thin foundation; whereas, without wire we must

have foundation heavy enough to fill only four frames to the pound.

Having decided to use wire, the next question is, how to put it into frames with heavy top-bars. Some stretch the wires across from one end-bar to the other; but I should not like that way. The wires being so long, they would sag or sway, and not hold the comb true in the center of the frame. I think we can never improve upon the six vertical and two diagonal wires, and the central vertical folded tin bar. These, properly put in, hold the thin bottom-bar straight and rigid while every wire is stretched as tight as a drum-string, and the frame is braced, preventing its getting out of square, which is very important. The comb is stiffened in the middle by the tin bar, where it is inclined to sag out while the comb is being loosened from the extractor wire.

We can not very well sew these vertical wires through the heavy top-bars as we did through the light ones; and, besides, I was always disgusted with having wires stretched across the top of the top-bars. They are almost sure to be cut, sooner or later, while cleaning off the top-bars.



My plan is to saw out a square strip from one of the lower corners of the heavy top-bars, which makes a rabbet half as wide as the top-bar. The wires are looped over the heads of small wire nails, which are driven into the vertical side of this rabbet. The tin bar is sprung in, in the usual way. The sheet of foundation is cut to fill the frame, including the rabbet.

After imbedding the wire and tin bar with a machine that does it at one operation, the strip that came out of the rabbet is dipped into melted wax and rosin, and pressed into the rabbet over the top edge of the foundation, the nail-heads, etc., and nailed, which, I assure you, thoroughly fastens the foundation at the top.

At some future time I may describe how all the wire nails are driven into the top-bar at one stroke by magnetism; how the wire is run into the frames on wheels; how the very thin foundation is made to adhere firmly to the wire after it is imbedded, and how all the wires and tin bar are imbedded at one stroke.

FRAME-SPACERS.

You ask for a device that will properly space the frames, and not cost more than ten cents per hive. You will notice that my end-bars embrace this feature, and it does not cost more than two or three cents per hive extra, and I think it answers the purpose as well as any thing that can be devised.

The end-bars are simply sawed out 1½ scant, wide. They are then passed over a cutter-head, such as is used in cutting the entrances in sections, leaving a shoulder one inch long in the center of one side of the bar. In nailing the frame, the shoulder, or projection, at one end, is made to project on one side, and that on the other end projects on the opposite side.

The frames being thus made all alike, they may be turned end for end, without affecting the spacing.

When the frames are all pressed together against one side of the hive, there is sufficient play at the other side to allow the first frame to be easily removed.

I can not see but that we have in this frame all the advantages of the closed-end frame, without some of its disadvantages. Any frame is easily loosened by simply moving the top-bar a little side-wise. We should never use wire staples, nor any projecting metal of any kind on frames that are to be extracted from, as the keen-edged honey-knife is sure to strike them, which means half an hour's grinding.

I am having 5000 more of these frames made for this season's use, but the top-bars are $1\frac{1}{8}$ inches wide, instead of $\frac{3}{4}$.

Although these top-bars will prevent brace-combs between and over them, I do not know but that we still need perforated zinc to keep the queen in the brood-chamber; still, experience will decide this.

OLIVER FOSTER.

Mt. Vernon, Iowa, Feb. 6.

There are some good things in your frame, friend Foster, and perhaps it can not be improved upon; but it is open to some objections. The first is, it would be rather expensive, because of the first cost of the frame, and because of the extra labor of wiring. I am afraid, too, those pieces rabbeted out would get lost, to say nothing of the "more pieces." But perhaps you have reduced the item of wiring to a minimum by the magnetic nailing, etc., you speak of. In regard to the wiring, I am not so sure the six perpendicular, the two diagonal, and the perpendicular tin bar, are necessary. Dadant, in the Revised Langstroth, calls it "excessive wiring;" and until convinced otherwise, I shall agree with him. I am well aware, that many older and wiser heads than mine will disagree. I have been experimenting some on wiring frames, and I find I can draw the horizontal wire, with pliers, more taut than I can the perpendicular. The frame I used had the end-bars pierced—three holes equally spaced. After the wire had been threaded through the six holes, with the pliers I grasped the end of the wire, and drew it until the three horizontal responded like a fiddle-string. In the perpendicular plan there are twelve holes to thread with wire, instead of six. Draw the end of the wire in a similar manner, and the bottom-bar will bow up; but even then you can not make all the wires tight. The more holes, the more friction to overcome in drawing tight. Why not use a tin bar? Well, I don't like them. Our bees scarcely ever cover them with comb. They will bevel it on a line parallel to the bar, and there stop. When Drs. Mason and Miller were here we talked the matter over. The big doctor (i. e., the Ohio man) said, "I shouldn't like the horizontal wires." But come to think of it since, he wires his combs in the Given press. If the wire follows the base of the cells, the horizontal wires would not hold the combs sufficiently straight, and hence the doctor would not like them. Dadant & Son use the roller foundation, wired on to three horizontal

wires, and that, too, on a larger frame, and they like it. Now, it will be evident that there will be considerable time saved in wiring the frames horizontally. Such frames, too, would cost less. While they may not hold the combs as securely, yet it seems to me it will enough so for the average bee-keeper. It should be remembered, that a good many do not wire at all.

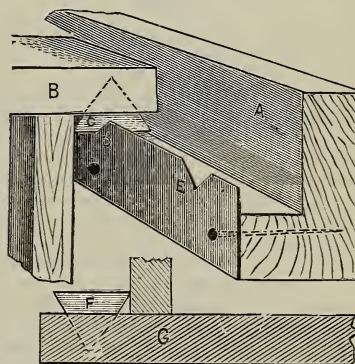
Now, I may be all wrong. All right; I will give up; but I want, first, facts from those who have tried wires horizontally. If they are a failure, let it be so reported. If the combs do not bow out, let us hear that too.

About fixed distances: There are one or two things about it I like. The possibility of loosening the frames by simply pinching the top-bars is good. But it seems to me that in other respects it would be rather inconvenient in handling. Perhaps after trying it I should like it. Our foreman says it is not easy to make, and, of course, it must cost considerably more than the regular frames.

Here is a device that is cheap, has no naughty projections to catch uncapping-knives, and, more than all, it can be adapted to frames in use by notching the rabbets.

NORTON'S FRAME-SPACER.

I take the liberty of sending you a section of a brood-frame, also of an end-piece of a brood-chamber, to show how I keep my frames in their proper places. The frame-rests and points I make of galvanized sheet iron. I have used them for the last two seasons with great satisfaction. I also find, for winter spacing, it is very little trouble to remove the points and replace them in the spring with the



help of pliers. With a sheet-iron saw or circle, on a foot (or other power) mandrel, the slots, or notches, could be quickly cut in the frame rests. I have used only a file, but I think I can fix both frames and rests for a hive in less time than it takes to adjust the frames, after hiving a swarm and moving it to its place.

P. L. NORTON.

Lanesboro, Pa., Feb. 4.

Your device, like Phelps' staples, has the elements of cheapness without their objection; i. e., the naughty projections for the uncapping-knife. Ordinary glazier's points, such as can be obtained at any hardware store, will be just the thing. It will not be so easy to notch out the rabbets, though it can be done with a three-cornered file. Wooden rabbets could be notched easily

with a chisel. There is one thing about this, that it can't cost much to try it. The engraving is not strictly correct. The point C should be shoved into the bar B far enough so that B may rest directly on the rabbit D. We have a number of spacing-devices which we will submit to our readers soon. After all have been weighed in the balance by a season's trial we shall know what we want.

ERNEST.

In addition to the above, I would say that Ernest and I do not exactly agree in regard to the matter of wiring. I would endorse every word that friend Foster says in favor of wires, and I do not believe that we can afford to dispense with the upright and diagonal wires. For my part, I should hold on to the bars. I do not believe, however, that I should like so much machinery as friend Foster advises, to get rid of the wires over the top-bar. I think I would bore the thick top-bars, and then, if it be desired to get the wires out of sight, draw a line with a marking-gauge, so as to cut through the center of the pierced holes. This will let the wires down into the wood, out of the way. Friend Foster's frame-spacer is old; but if we must space our frames, I think I should like it as well as any other spacer. Friend Norton's device for spacing the top-bars is exceedingly ingenious. If the rabbets are cut by machinery it could be done at little expense. I think that only a test, however, can determine whether we want the arrangement or not.

FASTENING FOUNDATION IN SECTIONS.

THE ARTHUR C. MILLER PERFECTION FOUNDATION-FASTENER.

My attention has been so frequently called to worthless inventions by unpractical bee-keepers of limited experience, that I have naturally become very skeptical concerning most new devices. For this reason, it is an exceptional pleasure to be able, as in the present instance, to bring before your readers an invention which, I believe, possesses unusual merit.

In 1888, while in attendance at the Rhode Island State Fair, at Providence, my attention was directed to a machine which Mr. Arthur C. Miller had invented for fastening comb foundation in sections. The machine was then in crude form; I may say it was only in process of construction; and as I gave it but casual notice, I was not favorably impressed with it.

In 1889 I was again called to Providence, and was entertained at Mr. Miller's home. I am sure I shall be pardoned if, just here, I diverge from my subject to introduce my friend to your readers. The name of Miller seems to rank well in connection with our pursuit, and I predict its standard will not be lowered as this gentleman becomes better known. If the artist gives us a good cut of Mr. Miller, I am sure it will tell its own story.

Mr. Miller was born in Providence, R. I., in 1862. At the age of fourteen his father died, and, as he said to me, "left me to cut out my own way."

In 1881 he took a position in the oldest and largest savings bank in Rhode Island, the Providence Insti-

tute for Savings, where he has remained, being at present paying teller.

He is a descendant of Roger Williams, which may account for his enthusiastic and determined nature. He has an estimable wife and two bright children, a son and a daughter. He has kept bees for the past ten years, having at times as many as fifty stocks. I found at his home nearly all the bee-keeping literature of the day, both American and foreign.

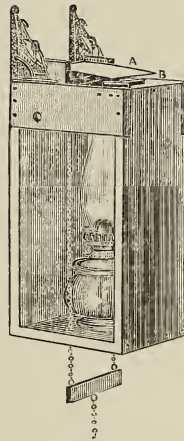


ARTHUR C. MILLER.*

Mr. Miller seems to possess a particular bent for investigation and invention, but at present I shall confine myself to that above mentioned.

While on this latter visit my attention was again called to this new device. I found myself deeply interested in the advance Mr. Miller had made in his progress from his first crude machine to the almost faultless one shown in the illustrations. In explaining it to me Mr. Miller said: "This one crowning point of success in the machine was gained by what I supposed was an error in mechanical construction."

Let us first consider the usual methods of fastening foundation in sections, and the conditions necessary for successful operation. Whatever the method employed may be, the wood to which the foundation is attached should be warm and the foundation soft and pliable. If wax is used for fastening the foundation, it must be applied when heated.

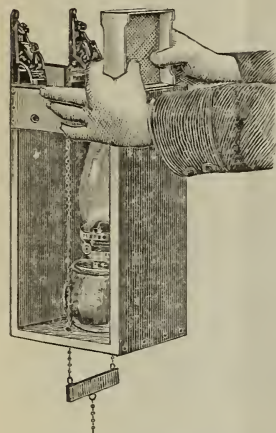


MILLER'S FOUNDATION FASTENER.

Mr. Miller's machine consists of a frame which may be fastened to a board against the front of a bench, or to any perpendicular surface (see Fig. 1). At the top, and a little back from the front, a light metallic plate is arranged, and the frame holding the plate is connected to a lever near the floor, to be operated with the foot. Under this

*Like all half-tone work, this is a natural likeness.—Ed.

plate a lamp with a wide flat chimney is so arranged as to heat the plate to a proper temperature.



MANNER OF FASTENING THE FOUNDATION.

The wax which adheres to the box, more perfectly than by any other method I have ever known. Skilled fingers will press the foundation slightly at the instant the hot plate melts it.

I am sure any one of experience will at once see how perfectly it will be fastened at both sides, with the same clean wax of which the foundation is made. The hot plate so evens the edge of the foundation that it is equally well fastened at every point. I tested several of the foundations a few moments after being fastened, and I found I could pull it in pieces, but in no instance did it cleave from the box or tear off close to the base. It is apparent, that there is a great advantage in having the foundation fastened in the position in which it is to remain. With the various fasteners in common use, it is necessary to bend the foundation to a right angle to bring it to its proper position.

When Mr. Miller was out of practice he could easily fasten a foundation in a single box in five seconds from the time he took up the section until he put it down completed, and he did twenty in three minutes. I feel confident, that, with intelligent, accurate, and appreciative bee-keepers at least, this is to prove a most valuable invention. I may add, that Mr. Miller has in process of construction a machine of similar design for fastening foundation in brood frames.

L. C. ROOT.

Stamford, Ct., Feb. 8.

Friend R., we are exceedingly obliged to you for the pains you take in showing us the picture of friend Miller, and we are also indebted to him; but I think it is no more than fair to mention that the idea of interposing a plate of metal, heated by a lamp, between the wood and the strip of foundation, was given us by a young Canadian, first at the National Bee Convention at Detroit, Dec., 1887, and later at the New York State Convention held in Utica, in January, 1888. At the latter place I paid him \$5.00 for a sample machine, and brought it home. Greatly to my surprise, our people could not make it work as rapidly as our ordinary foot-power machines. After spending a

good deal of time on it, it was put away on a shelf, where it stands yet. When friend Cutting was here a few days ago, he said the plan was all right, but the machine was not made as it should have been. He has one, he said, of his own make, and it answers the purpose perfectly, and is ahead of any device. The machine made by our Canadian friend was worked by one hand, while the other held the foundation.

MRS. AXTELL REPORTS ANOTHER LARGE CROP OF HONEY.

15,000 LBS. OF COMB HONEY; TAKING OFF SECTIONS, ETC.

In an article in GLEANINGS of Jan. 1. I mentioned taking off the supers without either the bee-hat or smoker, because the cool night before had driven nearly all the bees down out of the supers. The editor remarks, that, in leaving it on so long, it becomes travel-stained by the bees. In this locality bees gather honey right up to cold nights; and often we get as much from our fall harvests of heart's-ease as we do from the June white clover, and sometimes we have it almost cold enough for frost, and then it will warm up, and the bees go to work again. Heart's-ease is not so easily killed by cold as some other flowers; and if it gets quite warm during the day, even after quite a cool night, they get some honey. They do not soil the combs much within a week or two, or even three, at that time of year, because, when cool, they go down into the brood-nest.

I also remarked, that the little mosquito-bar tents that I tried last season, to get the bees out of the supers, did not work well. The editor thought it was because it was in cold weather, but it was in June that I tried them. I think it was because of the young bees being loth to leave the combs. It was about two hours after setting the tent over that I found they had not all left yet, and they had so spotted the sections that I had to use a sharp knife to scrape the spots out of the wood. One super of sections was badly soiled. I tried the tent once before in the fall, and the bees did not readily go out. The hole at the top was about $\frac{1}{2}$ of an inch across the top to work out of, and the tent was made as per GLEANINGS.

REPORT.

In the report of our season's work in GLEANINGS, Jan. 1, I made mention that our crop of honey would be 13,000 or 14,000 lbs. We had to guess at some of it. Mr. Axtell is very careful not to guess too high. Since then we have disposed of the rest of it, or so nearly so that we know what we got. It weighs 15,000 lbs. and a little over, all comb honey except about 500 lbs. of extracted and a barrel, not counted, left to feed back in the spring. As we had a very short fall crop, bees did not fill up their brood-combs as they usually do.

FEEDING OUTDOORS PREFERRED TO FEEDING IN THE HIVES.

We equalized the honey last fall so that all would have enough to carry them through untill late spring, we think, then we shall feed all out of doors, in one large trough, sorghum molasses, using only enough of the honey to get the bees to take up the molasses. First we have to use about two parts of honey to one of molasses; later on, $\frac{2}{3}$ molasses and $\frac{1}{3}$ honey, and finally they will take the molasses with

but little or no honey in it. It has this advantage—it causes no robbing, and our own bees take it up so quickly that the neighbors' bees don't get much; and what they do get they will need, and it will do them good. I think many of the ways of feeding in the hives waste more than we lose in feeding out of doors, especially the butter-dish feeders and inverted tin cans, and the loss of heat to the bees, and loss of time in feeding. We have fed that way what we were obliged to feed for several years, and like it better than the other way mentioned. But we don't like to feed bees at all—rather they would keep enough of their own honey.

Roseville, Ill., Mar. 1.

MRS. L. C. AXTELL.

Thank you, Mrs. A. When I spoke of leaving the sections on until the weather was cool, I did not think of your fall honey. We are exceedingly glad to hear of your good report last season; but as you did not tell us how many colonies you have, we are at a loss to know what the general average per colony was.—I confess I never thought of getting bees to take sorghum before, by first starting them on some containing part honey; but since you mention it, from what I know of the habits of bees I can readily understand how it would work. Outdoor feeding does certainly come nearer natural stores than any other way; but with us it is very apt to start up quite an excitement, and get the neighbors' bees as well as our own in the habit of hanging around; and our final decision was, as you say, that we preferred to dispense with feeding in any shape or manner, if it could be avoided. In your next, will you tell us how far off you placed the feeding-trough—that is, how far from the hives?

THE BEST BEES FOR BUSINESS.

HINTS ON MARKETING HONEY.

WHILE the pure Italian, the Carniolan, the Cyprian, and the Syrio-Italian, each has its advocates, I maintain that the bee for business is to come exclusively from neither race nor necessarily from any cross of any two races; on the other hand, our coming bees may be the progeny of any queen, from the most æsthetic "four-banded orange-colored Italian" to the lowest plebeian-bred black queen.

Mr. A. says that, by many years of careful breeding, a wise selection of progenitors on both sides, observing every precaution necessary to the highest development of a particular race or cross, he has obtained a generation of workers unequalled for their business qualifications. Mr. B. maintains that, while he believes in a judicious, scientific cultivation, he can not be convinced that any race of bees can be perfected as a whole, every bad quality being entirely eliminated; his observation and experience proving satisfactorily that, in every apiary, there are apt to be non-paying colonies. Do we not observe this same condition in all animal life? However carefully bred, individuals will have their weaknesses. Perfection will not come to the race in its entirety. Weaknesses will continually crop out. The horse, the mule, the cow, all domestic animals, are illustrations of this philosophy.

In my apiary of 60 colonies I have a hybrid colony that is worth any two Italian or Carniolan colo-

nies in the yard, and I have as fine specimens of these races as can be found. The industry of this particular colony is so remarkable that they really seem to gather honey when there is none to be had in the neighborhood—at least they do so when all others are nearly at rest; but when you go to capture their "honeyed sweets," make discretion the better part of valor, and get your armor on!

Up to the summer of 1888 I had a thoroughbred black colony that I would not have exchanged for any Syrio-Italians. I was able to breed *à la Cook*. This queen kept her colony strong in bees for five years, wintering always in a two-story L. hive as they stood on their summer stand, without any winter protection whatever. Last season she was superseded by a queen that I now intend to remove on account of her weaknesses; hence I believe that individual colonies of any race may be better than any race as a whole; that we can not breed out the bad qualities of any particular race and replace them by the good of all other races, any more than can we unite the individual good qualities of all races of men, forming one perfect man.

In conclusion, I will say that, were I to select a few colonies from several apiaries of different races, my judgment should not be biased by race or color, but made wholly upon their "previous servitude."

MARKETING EXTRACTED HONEY.

Making a rough guess, I would say that I have had more extensive experience in selling the above commodity personally and in talking with retail grocers concerning it, than perhaps any other beekeeper. My time not occupied in apiary or school-room is spent "on the road," traversing four States in part, talking "my life out," nearly, on honey, with hundreds of grocers from village to city. I give you what I have gleaned below in conclusions, not occupying space in detailing my reasons, unless you care for my views in another article.

1. Extracted honey should *never* be sold in wooden packages.
2. The bulk of extracted honey in grocers' hands should be in Root's 60 lb cans with gates.
2. Candied extracted honey is saleable only when the dealer thoroughly understands it, and has the confidence of his customers.
4. Nothing should *ever* be added to destroy its tendency to candy. I can produce knock-down arguments to substantiate this.
5. Honey liable to candy should not be left with a grocer who doesn't understand this, can not explain it, or knows not how to remedy it.
6. Only the very best honey that will not candy (isn't granulate better nomenclature?) should be put into sealed packages.
7. The great bulk of our honey *must* be sold with "no charge for package," directly or indirectly.

HONEY FOR DYSPEPTICS.

I have just noticed what Chas. Dadant says on page 130: "Dyspeptics can not eat honey without increasing their distress." I have customers who take it for dyspepsia, and I am in the habit of saying of well-ripened thick honey, "If this makes you sick, I'll pay the doctor's bill," recommending it for weak stomachs. I myself have a bad case of indigestion, and I eat honey in season three times a day, and lick my fingers between times.

St. Albans, W. Va., Mar. 3.

J. C. CAPEHART.

Friend C., I think I pretty nearly agree

with you in regard to bees for business. I once had a hybrid colony that built comb and stored honey right through a severe drouth when the other bees got scarcely an ounce, and hardly stirred a peg. The bees from this hybrid colony were flying every day, as fast as they could put out and come back; but when we went to their hive, they fought like tigers. Finally I got a theory into my head, that, the more honey I took away from them, the harder they worked; and in order to demonstrate this to my satisfaction, what do you think I did? Why, it was like the last straw that broke the camel's back. I crowded them so close that I found them one day all starved to death. I had neglected to look at them for some little time, thinking they would find enough to live on any way. I always feel bad whenever I think of it. I consoled myself at the time by thinking it was not very much matter, as they were so pesky ugly. With the outlook now before us, however, and the great things we are expecting to accomplish by bee-escapes, etc., we might put such a strain of bees away off in the woods somewhere, and then take the honey away by lifting off finished cases, without a bee to bother or hinder.—I hope it is a notion, that I can not eat honey of late years. If so, I am going to try hard to get over it.

CAGING QUEENS, ETC.

WRITING FOR PRINT OR FOR THE WASTE-BASKET.

THE following private note accompanying an article came to hand; but as it contains one or two spicy hints, we take the liberty of making it a sort of prelude to our friend's article.

Friend Root:—Don't think that I shall get mad if I don't see this little effort in print, as some have done, for I have learned better. Some eight or ten years ago I used to conceive some ideas about how bees and "fixin's" ought to be, and would imagine how this great throbbing world was standing still, waiting till I could and would let my light shine. I remember of sending you some of these (to me) master productions and you cut off all that amounted to any thing to me, and threw it into the waste-basket, and told me, as a friend (in need), that your grandfather or some one else had abandoned the same idea away back in the fifties. You see, this is "awful convincin'" to an aspiring writer, that "new ideas" are scarce. M. A. GILL.

Viola, Wis., Feb. 20.

The following is the article, and a valuable one it is too:

CAGING QUEENS TO PREVENT SWARMING AND EXCESSIVE BROOD-REARING WHEN NOT DESIRED.

While thinking upon some of the important questions that have been discussed in GLEANINGS in the past few months, I thought a few observations of my own might not come amiss. I am glad to see the subject of caging queens during the honey-flow receive some attention, for I consider it one of the sources which are to relieve us of so much increase at a time when we wish to control it at all hazards. I mean bee-keepers north of the 44th parallel, who have struggled, so to speak, to get their

bees in working shape for basswood, and know that what honey they do get must come in 15 days. Yes, we work the whole year, as a rule, for what we can get the first 20 days of Ju'y. If this be the case, it is a self-evident fact that we don't want any swarming during this time; and more, we don't want the combs occupied with brood in the top story; and for my part I don't allow it in *either* story from the 10th to the 15th of June, until basswood bloom is half passed, or, say, 10 days after basswood has opened. If my queens are caged I liberate them at this time; and if I have taken the queen away (and killed her if she does not come up to my standard, or given her to a nucleus, if she be a good one), I gauge that time to this event, and aim to have her laying from four to six days before basswood closes. You will say, no doubt, that this would be an extravagant loss of young bees. But I tell you, while we are working for extracted honey during basswood, with a full supply of combs, that we have no use for any thing but honey-gatherers, and no use for any thing but young bees for the subsequent month, as that is here our dry month for honey, and September, when we get our next flow; this gives us ample time to produce another crop of workers.

I wish to mention here two queens that were caged on the 12th of July, and missed by some help I had on the 18th (when I ordered them liberated). These were found caged on the 18th of November. Of course, all the bees were dead, and so was one queen; but the other was as lively as a cricket, and had two frames of brood 10 days later, when I put them into the cellar. The colony is still alive, but of course weak; but quite a goodly number of the old hybrid colony are still there, and, of course, they are eight months old. How is that for a hardy strain?

A VALUABLE SUGGESTION ON THICK TOP-BARS.

In regard to thick top-bars, I will say that I made 30 hives, six years ago, with top bars $\frac{3}{4}$ deep by one inch wide, and they were not spaced properly, being only 8 frames in 12 inches; but the space above was $\frac{3}{4}$ of an inch, and it prevented brace-combs to such an extent that inexperienced help spoke of it. I noticed another prominent feature that I have not heard mentioned in any of the comments; namely, the bees would build their combs clear down, and fasten them to the bottom-bar in the top-story, and that with only a small starter of foundation. This, you see, would leave the space between the frames intact, while in hives with $\frac{3}{4}$ top-bars, no more crowded than the others, the space between the top and bottom set of frames would be built full, and the bee-space left between the combs and bottom-bars of the top-story frames. This last feature I consider the most valuable of all; for if it would prevent so much under such circumstances, would it not be infallible with a proper adjustment of frames and spaces? I have noticed, too, that, where one or two of these frames are mixed through my other hives, that the effect is visible.

Since I wrote from Tennessee about this section of Wisconsin, its large basswood forests, its sure crop, etc., I have received many scorings from local bee-men, and some that are not so local. But, I ask, what harm can come to us if this country is worked to its full capacity by specialists who would not, from self-interest, overstock the territory? What harm would it do if all our honey were gath-

ered, and a honey market established right here? For my part, I don't want the "earth and all there is therein," and I would rather see it gathered and saved than wasted on the desert air. M. A. GILL.

Viola, Wis., Feb. 20.

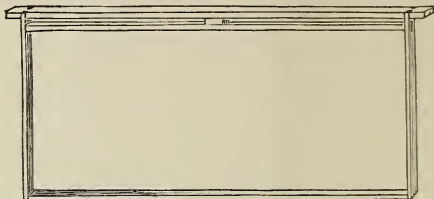
Friend Gill, you have indeed suggested some very valuable points; namely, that caging queens not only prevents swarming, but it prevents excessive breeding just when we do not want it. We little realize, many of us, how much is consumed in brood-rearing; and no doubt that, with a large force of bees, all of them capable of bringing in honey, we might see considerable increase in the amount of honey over that where the queen is left at large in the hive. We trust our readers will give this caging process a thorough test during the coming season. Who knows but that it may be a solution of the problem how to prevent swarming? It will require skill to manage it rightly.—The point you make, that thick top-bars cause the comb to be built clear to the bottom-bar, is a valuable one indeed, if true. I know that the objection has been made, that a heavy bar takes up valuable comb space. If what you say will prove true in the hands of other bee-keepers, thick top-bars do not interfere with the amount of comb to be built, but the contrary.—Friend G., do not be afraid of the waste-basket. You know there is something in getting up a name. E. R.

DOUBLE-TOP-BAR FRAME.

SOMETHING ELSE TO DO AWAY WITH BRACE-COMBS.

A LITTLE over ten years ago I took the "bee-fever," and I took it "bad." I did not own a bee at the time, and was a lad of only 18 years. What did I do? Go and buy a lot of bees? No. I went to reading and studying up the matter, and I said I would begin at least part way up the ladder; that is, I would not begin and spend my time in hopeless blunders. I therefore studied for a year, then purchased a hive of bees, only to find that I was on the first round of the ladder after all, for all my fine theories fell through when I came to handle them. But I will not take up space to give you the ups and downs of those ten years. My father being a carpenter I had access to all the tools necessary for hive-making. I therefore got me up a hive combining the good points of all (at that time), as nearly as I could. This hive took the standard box, carried two half-supers on top; the brood-frames were of just the right depth to fill these two half-supers when I wished to run for extracted honey, so it made a very convenient hive; but in time I found there was something wrong about my pet hive. 1. I had, in the fall, to go through all of my colonies, and cut central holes through the combs, in order that the bees might find passage from one side of the hive to the other, without being compelled to go around the outside end of the frame. 2. In taking off my supers I was vexed at finding many of them stuck down to the top of the brood-frames by brace-combs. These two objections I was bound to overcome, and at last, two years ago, I remodeled my brood-frame so that it entirely overcame these two bad features.

As the subject of thick top-bars is now before the bee-keepers of the world, I think it is time I sent in my testimony through GLEANINGS. My first object was to get a permanent bee-passage through the frame—one they would not close up as they did in case where I cut holes through the combs; and, recognizing the fact that heat rises, and that this passage must be in the warmest part of the hive, I simply put in an extra top-bar, just under the original top-bar, with just a bee-space between the two. This false top-bar just fitted the inside of the frame, and was held in place by nailing through at each end, and in the center a block one inch square (the thickness of the bee-space) is slipped in, and a wire nail passes down through both top-bars and this block, which holds the two as solid as if they were one piece. Width of top-bar is $1\frac{1}{2}$ in.; depth,



AMES' DOUBLE-TOP-BAR FRAME.

including bee-space, 1 inch. As I have said, I have used this frame two years, and in that time I have never had a brace-comb built on top, nor have I had a loss of a single colony of bees wintered on these frames; and, better still, I have never had a queen get above when put on these frames. I consider them far ahead of a solid thick top-bar.

If this is of any use to you or to the bee-keepers of the world, you are welcome to it.

Hudson, Mich., Jan. 6.

IRVING H. AMES.

Many thanks, friend Ames. It is quite possible that you have struck on to a good thing. If a double top-bar, such as you describe, will do away with burr-combs as effectually as thick bars, then surely the former will have the preference. It will be lighter, and answer as a Hill's device in winter—that is, giving the bees a winter passageway, and it would be just as cheap. Moreover, every bee-keeper, no matter how many combs he has, can put it to a practical test by cutting out, say, one inch of comb immediate to and parallel with the top-bar, and inserting an extra bar, as shown in the engraving above. Where combs have perpendicular wires it might interfere, but there will be enough combs without such wires, so that every one can prove for himself whether it will be a success. In my hand is such a frame as you describe. It came in the mails, and I do not know from whom it came. If I can judge correctly from the propolis accumulations, it has been in use for several years, for it looks like an old "residentialer." I am not surprised that there should be no burr-combs above the top-bar proper; but there are actually *no* burr-combs built in the space between the upper and lower bar. As this double-top-bar frame contains the principle of the slat honey-boards, in conjunction with ordinary brood-frames without the break-joint, I should naturally suppose that the intervening space would be filled with burr-comb; but in the sample sent, none

such have been built. In the sample which I have, the bars are $\frac{1}{2}$ inch thick, and $\frac{1}{4}$ inch wide. In your letter, friend Ames, you say the width is $1\frac{1}{2}$. Did you ever try only $\frac{1}{2}$, spaced $1\frac{1}{2}$? Some unknown friend, whose name I do not now recall, wrote some time ago that an additional top-bar spaced $\frac{1}{2}$ inch below the top-bar proper, in ordinary frames, would prevent the building of burr-combs. At any rate, another friend, Mr. M. M. Baldrige, has written in this wise:

THICK TOP-BARS.

NEW PLAN FOR MAKING THEM: SHALLOW FRAMES
VS. DEEP FRAMES: WIRED FRAMES: STARTERS
VS. FULL SHEETS IN SECTIONS.

Friend Root:—I have read with interest what you and others have to say in GLEANINGS on the subject of thick and wide top-bars to brood-frames as a preventive of burr-combs, and a discourager of the queen's ascension to the surplus chamber. I think it will pay you and others to experiment extensively in the direction of thick top-bars to brood-frames, because, if you gain nothing by so doing in the directions referred to, I think you will sooner or later discover that a shallow frame in your Dove-tailed hive will give you better results than a deep one. If you make the top-bars an inch thick, more or less, it will certainly reduce the capacity of your brood-frames, which is on the road to shallow frames, and sooner or later you will get these—say, to one not more than 7 inches deep, inside measure. This is the depth I use, even in the standard L. hives, which gives me a two-inch space under the brood-frames. Now, you may think it will not do to have so much space under the frames in the brood-chamber because the bees will fill it with comb. But this is not my experience, for I seldom find any comb in this space when the bees are given ample accommodations in the surplus chamber. Besides, I find this two-inch space a splendid arrangement in the wintering of bees, whether outdoors or in repositories. I wish both you and your readers would try a few hives the coming season, with shallow frames, such as I use, and report. One advantage is, in case you accept my suggestion, you can give shallow frames a thorough trial without any special expense, simply by using new frames of the proper depth, or by reducing those already in use.

But my main purpose at this time is to call your attention to my plan of making thick top-bars to brood-frames, and at the same time to secure the advantages of the slatted honey-board, and the twin bee-space that the board secures when made properly, and yet dispense entirely with the said honey-board. It is simply this: Make the top bar to the brood-frames three-fourths or seven-eighths of an inch thick by either of the following plans: 1. By using two flat strips, each $\frac{3}{8}$ inch thick, and space them $\frac{1}{4}$ inch apart the entire length—the top strip to be long enough to hang upon the rabbets, and the bottom one the exact length of the inside of the brood-frames. The $\frac{1}{4}$ -inch space between should be exact, and may be secured by the use of three square blocks, each $\frac{1}{4}$ inch thick, and the same width as the top and bottom strip. Use one at each end, and the third block in the center, and secure them in place with wire nails. Or, second, the top piece may be got out $\frac{3}{4}$ or $\frac{7}{8}$ thick, perpen-

dicularly, and the $\frac{1}{4}$ -inch slot may be secured by means of circular saws.

Now, friend Root, do you not see that the foregoing secures a thick top-bar to the frames, and the twin bee-space at the same time, when a bee-space is used above the brood-frames? And yet we have got rid of the slatted honey-board! Besides this, we have secured a brood-frame whose top-bar *will not sag*, when full of brood or honey, and that will do away with tin supports and diagonal wires. I find in practice that six perpendicular wires simply, No. 30, are ample in standard L. or the shallow frames; and I would not have more, even if I could just as well as not. I can wire 300 brood-frames, $7\frac{1}{4}$ in. deep, outside measure, the depth I use, with a 1-lb. spool of No. 30 wire, and never have a sheet of foundation give way, even when large swarms are hived in hot weather upon a full set. Now, what more do we want in that direction?

St. Charles, Ill., Jan. 14.

M. M. BALDRIDGE.

I am glad to get your testimony, friend B., on this very interesting question. I am not so sure about the shallow frames. Perhaps there will be an advantage in making them only seven inches deep. If reversing should ever prove to be desirable, a double top-bar and a double bottom-bar would leave an ordinary L. frame only about 7 inches deep. The very great majority of bee-keepers prefer the standard L. frame; and even if there were a slight advantage in making it shallower they would not change, for the reason that they would not be in line. While we are on reversing, has it not occurred to you that we could make a reversible frame on Heddon's plan, with double top-bar, very easily? Instead of making the two bars come in contact, as does Mr. Heddon, make them come $\frac{1}{2}$ inch apart. The frame could be easily reversed, and, whichever side up, there would be always the double top-bar. As I have called for votes on the thick top-bar, I should also like to have short testimonies from those who may possibly have tried the double top-bar.

E. R.

I will add, that using an L. frame two inches shallower, especially for experiment, will not make much trouble in an apiary of L. frames. If the shallow frame were put between two ordinary frames, however, bees might build combs under the bottom-bar; and if it should by accident be placed in an upper story, it would, without question, make trouble, because the bees will fill the space all up solid with honey. Our readers will remember that this matter of a two-inch space under the bottom-bars was given on page 129 by friend Murray.

NO BURR-COMBS.

In regard to the thick top-bars, let me say: I have never used any other than $\frac{3}{4}$ x $\frac{1}{4}$, and had very little trouble with burr or brace comb between frames, and none at all above. Since I have seen the slatted break-joint honey-board, I make my top-bars one inch wide and $\frac{3}{4}$ deep, and find this still better. Forty years ago in Germany, and later in America, before frames were known, we used sectional hives 12 x 12 in. inside, and from 3 to 7 in. deep; and even in them we made frames with $\frac{3}{4}$ x $\frac{1}{4}$ top-bars. I was astonished when I first saw your $\frac{3}{8}$ -inch top-bars.

L. HAMMERSCHMIDT.

Amana, Ia., Feb. 22.

WILL BUCKWHEAT CROSS?

PROF. COOK GIVES US HIS OPINION IN THE MATTER.

YOU ask if Japanese buckwheat will cross with the other varieties, if grown side by side. Surely there is every reason to expect such a result. The fact that the fertilization is not close, that the stamens and pistils do not mature at the same time, and all plant analogy, would argue that such crossing is not only possible but exceedingly probable. I should not wish to have other buckwheat grown close beside my Japanese; for in such case I should surely expect deterioration. I know that nature is very curious in her behavior, often greeting us with the most unexpected surprises, so we should never be too certain of any special thing till we have actually demonstrated it, no matter how probable it may seem. I have just asked Dr. Beal if the above view is scientific orthodoxy. He replied quite emphatically in the affirmative. He said he should certainly expect buckwheat to cross, though actual experiment alone would make him absolutely positive. We can not reason from the cereals, or common grains, like wheat and oats, to buckwheat. The former are closely fertilized, and crossing is difficult and rare, while the latter is dependent upon insects for full fertilization; and we may thus conclude that close fertilization is not good for the plants, is not conducive to prolificness, and so is not the rule. The practical conclusion is, that we should keep varieties of buckwheat separated, or else we shall mix them, and lose the value which we possess in any superior variety. We will try to demonstrate this point the coming season.

A. J. COOK.

Agricultural College, Mich., Feb. 25.

We referred the matter to Prof. Green also, who replies:

Mr. Root:—I am unable to give you any information concerning the crossing or mixing of buckwheat, nor can I find any one who knows anything about it. I will make further inquiries, and also undertake some experiments in that line, if nothing is learned from any one else. I judge from what Joseph Harris says in his catalogue, p. 13, that he thinks the varieties will cross; but he may have no positive knowledge on the subject. We had two varieties (one being Japanese) growing side by side, but no seed was saved.

W. J. GREEN.

Columbus, O., Feb. 25.

Well, now, friends, you may be right, but I can not understand how it is that buckwheat will mix, and all these years have passed and we have never found it out. Silverhull and the common have been grown side by side for perhaps 15 years, but I have never seen any thing that I should call a cross between the two. The difference between the European silverhull (a very small grain, light in color) and the Japanese (a very large grain, and color just opposite the other) is still greater; and although we have had both for four or five years, none has ever reached us looking any thing like a cross between the two. We have also had several reports where the two were grown side by side in the same field; but in harvesting the crop, nobody spoke of seeing any thing that looked like a cross. We are willing, however, to await careful tests.

EXTRACTORS.

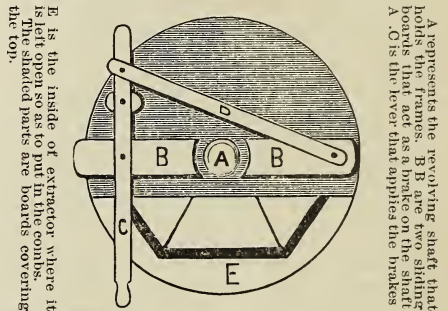
A FOUR-FRAME AHEAD OF A TWO-FRAME BY 3 TO 1.

I AM greatly interested in J. F. McIntyre's reversible extractor, and I should like very much to see it work. I am a "doubting Thomas" in regard to reversible machines, simply because I have seen so many that were not practical. Still, I shall be very glad to learn of a good reversible extractor. I like the principle of friend McIntyre's machine, however.

I used a two-frame Novice extractor for over 15 years in Wisconsin. I was satisfied with it, and I really thought it far better than any four-frame extractor made, and I could take the honey from the hives, and return the empty combs, and extract 700 to 800 lbs. a day. But since I came to California two years ago I have been convinced (against my will) that it pays to use a four-frame extractor.

In Wisconsin I was single and had to do the extracting alone; but now in California I have a wife, and she helps me extract. We can bring in the honey, uncapped, and return the empty combs, and extract a ton of honey in one day (10 hours), making a difference of nearly three to one in favor of the four-frame machine. The above is no guess-work but an actual test case.

Now, a four-frame extractor is too heavy to be stopped quickly with ease and safety by the gearing, so we can check the motion by the gearing with the right hand, and with the left hand apply the brake.



ARRANGEMENT OF BRAKE, FOR STOPPING A SIX-FRAME EXTRACTOR.

With the above brake, my wife handles a four-frame extractor with speed and ease, and she weighs only 99 lbs. too.

REESE POWELL.

San Bernardino, Cal., Dec. 21, 1889.

Friend R., no doubt your four-frame or six-frame extractor is an advantage; yet your reasoning, if I am correct, is not quite clear. Had you and your good wife used a two-frame extractor in California, we could tell something about it. You see, that little woman who "weighs only 99 lbs." may be a good deal smarter than you are. I hope you will not take offense at this suggestion; and I think I may say, on general principles, that any man, almost, can get more than twice as much honey with the help of his wife as he would if he worked all alone. With these large extractors I feel pretty certain that some sort of brake is needed. When it gets such a great weight of machinery under motion, it takes time, necessarily, to stop it, unless you have something similar to the mechanism shown above.

BEE-KEEPING IN WISCONSIN.

A SUCCESSFUL AND AN OLD FOGY BEE-KEEPER.

As a great deal of attention has been paid to the basswood regions of late, and especially those lying in Southwestern Wisconsin, allow me to place before the readers of GLEANINGS a contrast between two bee keepers (at least one was), whom the writer visited while spending his vacation in that region last summer, just after Uncle Amos had departed from there with his Kodak. Most of GLEANINGS readers remember, I presume, the article from the pen of Mr. M. A. Gill, page 671, 1888, concerning his large yields of honey from basswood in Southwest Wisconsin, so it is not necessary for me to introduce him to you here.

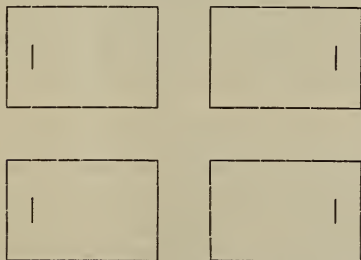
In the summer of 1888 Mr. Gill and his family resided in the South, he having then come to the conclusion that this was the oft-spoken-of Utopia; but as experience is a good teacher, he has changed his opinion of this fairy-land, the South, and has come to stay again in the valley of the Kickapoo, surrounded by its peculiar sceneries and immense basswood forests.

In the spring of 1889 Mr. Gill started with 62 colonies in Simplicity hives, running 51 for extracted and 11 for comb. When I was there, the last week in August, he had taken 6200 pounds extracted and 1000 pounds comb honey—basswood, to be sure, and for quality it was A 1 (not A. I.).

On the 18th of June Mr. Gill started 50 two-frame nuclei, and these worked with such a vigor that, within two months, they had cast 19 swarms, besides two swarms that had absconded to the woods. From these nuclei he had taken 200 pounds comb and 250 pounds extracted, before the close of August, with good prospects for more. Well, how is that for basswood?

But basswood is not the only resource of this region, for Mr. Gill showed me plenty of aster, bonaset, and other honey-producing flowers. He informed me that the grounds in his vicinity were completely carpeted with white clover; but as it was very rainy and cold at that time, the bees and Mr. Gill did not profit any thereby.

Mr. G. arranges his hives in groups of four, with the entrances of two of these facing east, we will say, and the two opposite ones west, with a distance between the hives sufficient for a walk. Thus:



M. A. GILL'S METHOD OF ARRANGING HIVES AND ENTRANCES.

The heavy dash lines indicate the entrances.

Let me state that both Mr. and Mrs. Gill are very pleasant people, and Mr. Gill is known almost everywhere in this district for his large crops of honey; but I think that it is not only the honey resources of his locality that account for this, but the love he seems to have for his vocation. Careful-

ness, cleanliness, and business principles, were among the things I noticed that he paid strict attention to.

Now, if you please, allow me to draw your attention to the would-be bee-keeper, whose trade is that of a blacksmith; but he tries (?) to keep an apiary of about 100 colonies as a "side-show." Jones, we will say his name is, resides in Wisconsin, and he seems to enjoy very much practicing fogyism and telling lies! He uses the American hive, and, to put a second story on, the poor fellow has to go to the trouble of calking and plastering! His style of doing things, and the way he procures his honey—that is, what few pounds he does get, is enough to make any one sick. Cleanliness and order are objects of little or no value to him. How can a man be successful who throws his empty sections, frames, and other paraphernalia belonging to the bee-keeper (all covered with propolis), here, there, and everywhere, but never in its proper place? He also uses old barrels, that are fit only to make kindling-wood of, to fill with honey extracted from the brood-chambers.

Jones has the reputation, however, of being a good but slow worker at the anvil, and is also known for his big lies. I trust that no one of GLEANINGS readers will envy his position, but rather pity him, for he is getting to be old, and is evidently very ignorant.

May it be my sincere wish that every one who reads this will profit by the contrast between these two bee-keepers which has been pictured to you by a—

CHICAGO BOY.

My good friend, we are very much obliged indeed for the kind words you speak in regard to our old friend and subscriber M. A. Gill; but I confess I can not help feeling a little bit pained in regard to your very severe strictures on the blacksmith bee-keeper. Of course, I have no idea as to who he is, and I really hope that the whole State of Wisconsin does not contain even one such as you describe. In summing up the evil belonging to such a case as you mention, please let us be sure that we do not fall into another error in cultivating even just the least bit of that spirit that "rejoices in iniquity."

INCREASE BY DIVIDING INSTEAD OF BY NATURAL SWARMING.

A CALIFORNIA BEE-KEEPER OF 200 COLONIES CONSIDERS IT MORE PROFITABLE.

A SEASON of greater rainfall than the present, up to date, has never been known in California. As an abundance of rain properly distributed seems to be about all that is necessary to insure a good honey-crop, we bee-men feel rather jubilant. We are not out of the woods yet, however, as a drouth from now on would spoil our prospects; but this is very improbable.

The bees are now beginning to raise brood, and from now on they should be worked with constantly, urging them to do their best in this respect. My plan to do this is, first, to see that all have an abundance of honey. I then go through them once a week, if the weather permits, uncapping a little honey and spreading the brood. In this way many will be ready to divide by the 15th of March, or as soon as drones are flying. My preferred method of dividing is to make nuclei; and when they have lay-

ing queens, build them up with combs of hatching brood. As it is desirable to get early as many laying queens as increase is wanted, I always make enough more nuclei so that, after the usual proportion of queens is lost, there will be as many as I wish increase. For instance, I have about 250 stocks. I hope to have 400 by the first of May, or an increase of 150. To insure getting that number of laying queens I make about 180 nuclei. The nuclei which fail in getting queens are then united to some other. By the forcing process through which the bees have been put, it is easy to select the poor queens. These I kill, and the stock is divided up into as many nuclei as its strength permits of. It is from this source that most of my nuclei are made. Of course, I always give them queen-cells which have been made in strong colonies. I shall raise my cells this year *a la* Doolittle. The first principle in dividing is, never to so weaken a stock having a prolific queen as to restrict the laying of that queen. By observing this rule, all stocks which had good queens in the spring will be overflowing with bees at the advent of the honey-season, May 15, while the nuclei made in March and fore part of April will be ready for business by June 1st to 10th, and will do good work from then on to the close of the honey season, July 10th, generally. According to my experience I make about one-fourth more honey by this way of managing than when bees are left to increase at their own sweet will.

I have a suggestion to offer in answer to the question, "What shall the bee-man do to occupy his time during the winter?" If you live in California or the Gulf States, where it is imperative to be with one's bees only from March to August, why not start an apiary in Cuba, and run bees down there from November to March? There being no severe winters to contend with in either country, to insure finding the bees on coming back it is only necessary to have plenty of honey in the hives. The man who tries this must not be handicapped with wife and bairns, as traveling expenses would swamp him.

WM. G. HEWES.

Newhall, Cal., Jan. 28.

RETAILING HONEY.

HOW TO MAKE IT GO LIKE HOT CAKES.

I WILL give my way of selling extracted honey. It may do some one some good who lives in towns large enough to sell honey. Knowing that Jackson, a town of 29,000 inhabitants, has never consumed more than a very little extracted honey, for the reason it never has been put on the market in the right shape, and but a very little in any shape, I made up my mind to see what I could do in the line of selling. Having but little extracted honey of my own I thought I could help some other bee-keeper out with his honey. I put a little advertisement into the Exchange Department of GLEANINGS, to exchange supplies for extracted honey. You may be sure this brought chances enough to get honey. As soon as any honey came I commenced to buy two-quart pails. I got them for 65 cts. per dozen. I filled them, and started out. Well, you would be surprised to see them go. I found I could sell two to three dozen of these pails in two or three hours. I live on my farm four miles from the city. After doing my chores I would reach the city about 10 A. M.; then I would get sold out by

1 P. M. Then I would get more pails, and start home to fill them. I put $4\frac{1}{2}$ lbs. of honey into the pail, which weighed $\frac{1}{2}$ lb. This makes 5 lbs. I sell pail and honey for 50 cts. In this way I shall sell 8000 lbs. this winter in Jackson, and I haven't spent half the time in selling honey. This educates the people to eat honey. Some families bought four or five pails. When I am in town the people know me as the "honey-man," and run after me for more. The honey cost me about 8 cts. per lb. Any of you living in a city can dispose of your crop, and sell some for your brother bee-keepers this way. Always use a large label, and be sure your honey is pure. Then it will go like hot cakes.

Jackson, Mich., Feb. 10.

W. D. SOPER.

I am glad to hear of the success you have made, friend S.; and judging from the quantity of tin pails we are selling, I think it quite likely that in many towns, especially where honey has been sold in that way, there is a great opening to the enterprising bee-keeper.

COMPARATIVE RESULTS WITH THICK AND THIN TOP-BARS.

ARE BURR-COMBS THE RESULT OF IMPROPER TOP-BARS?

I WISH to speak in favor of thick top-bars. I am at present using both. I started bee-keeping, about eight years ago, with $\frac{3}{4}$ -inch square top-bars (with one lower corner sawed nearly out to facilitate fastening foundation); but having no real reason for using them made that way, I began making them shallow (two years ago), more, I suppose, to be like other progressive bee-keepers. Since I have them both in my bee-yard I could not account for brace-combs in some of my hives and *not* in others. If I put on a super with sections it was fastened tight with burr-combs; if I put on a honey-board under the super, the honey-board would be fastened just the same; but underneath the super it would be fairly free from burr-combs. As regards the hives that contained the thick top-bars, I can not recall one instance where burr-combs were troublesome when a proper bee-space was maintained, and I have used them with and without honey-boards. I think, also, that $\frac{3}{8}$ or $\frac{1}{2}$ inch top-bars are not stiff enough without a comb-guide for heavy combs of brood and honey. Even if they bend but a trifle it affects the shape of the cells and injures the brood. The bees notice this sagging where we would not, and immediately set to work to strengthen the combs with brace and burr-combs.

BROOD-FRAMES FLUSH WITH THE TOP OF THE HIVE.

I see that you find fault with brood-frames that come up flush with the top of the hive, on account of killing bees, etc. Why not have the bee-space on the under side of the cover formed by strips $\frac{3}{8}$ inch square? I am using covers so made, and find I am not liable to mash half as many bees as when the bee-space is on the top of the hive, with the cover resting on a $\frac{1}{2}$ -inch (instead of a $\frac{3}{8}$ -inch surface) edge of hive. Then, again, the quilt can be more neatly and quickly applied when the whole surface is level. Again, if the frames come flush with the top of the hive, we must have the bee-space on the bottom of the super admitting of the T tins being inverted; but I have for the last three years used

tins of this shape —, as section-rests. You will find them strong enough, and the sections can be placed close together at the bottom, admitting of a more successful use of double-slotted sections by not having the cracks between sections filled with propolis, and your sections standing square.

When Tins are nailed to the bottoms of the supers they have to be very accurately spaced. Not so with the — shaped tin. They will also work just as well, if not better, on your bent staples, for holding section-rests. They can be placed on the staples without shaking off when moved about. I would suggest that Dr. Miller try a few in his supers. W. A. CHRYSLER.

Chatham, Ont., Can., Feb. 3.

We could make the cover bee-spaced as you mention; but for various reasons it is cheaper and better to make the bottom-board bee-spaced. The majority of bee-keepers would be against you on this point. Thanks for your information on the matter of thick top-bars.

WIDTH OF TOP-BARS.

MR. HEDDON ARGUES FOR NARROW TOP-BARS AND HONEY-BOARDS.

BROTHER Oliver Foster's article on page 126, and some of your foot-notes, call me out again. In response to Bro. Foster's question in the closing paragraph of his article, I think I stated in my former article, in connection with my declaration, which I now wish to repeat, that I would never under any circumstances make a top-bar more than $\frac{3}{8}$ wide; that if I found any great advantage, after thorough trial, in placing top-bars just five-sixteenths of an inch apart, I would do so with the $\frac{3}{8}$ bars by putting more frames in the same space. Well, I am impatiently waiting for time and experience to convince all you fellows that just all they will do with the wide and deep top-bars is to find out that they will lessen the amount of brace-combs built above them; that they are a good thing when made deep, but not wider than $\frac{3}{8}$. The deepness is the grand thing, as I wrote years ago. It makes the bars stiff, preventing sagging. It is in no way objectionable in a Langstroth hive, and, of course, it is worth something to lessen the quantity of brace-combs above them; but the great point of getting rid of brace-combs below the surplus receptacles can never be wholly accomplished in that way. The break-joint honey-board does it, and, after this little excitement is over, the break-joint honey-board will stay right where it is, doing that excellent service that nothing else can do.

In another of your foot-notes, on page 129, where you say that you do not remember any one suggesting raising all the frames in order to secure the complete building of the comb clear to the bottom-bar, I will tell you that, whether any one has written about it or not, years ago Dr. Southard, of Kalamazoo, made comprehensive experiments, and reported the whole to me at the time. After all, it is more costly, and not nearly as complete a method of accomplishing the result as that of inverting.

Ernest desires to know how I am going to use the thick top-bars with my new hive, with such shallow combs. Why, it would be very easy to make the cases enough deeper to give me the same comb depth that I now have, and make the bars thick; but I shall never do this. With those shallow cases,

worked upon the alternating plan, the board is kept so closely to the bars, both top and bottom, that very few brace-combs are built. Another thing: I make the bars (which are just alike, top and bottom, as all are invertible) not only less than $\frac{3}{8}$ thick, but $\frac{1}{16}$ less than $\frac{3}{8}$ wide, so as to have them just the width of the worker comb. This allows us to readily see right through every case, estimate honey, brood, and cut out queen-cells without the necessity of moving the frames. When you once come to use the hives in large quantities, you would find that these little alterations so materially aid the new system of management that they are worth very much more than any and all results which can be gained from deep top-bars. We have been all through the practice of both, on a large scale, year after year, and we are very sure that we know just how the matter is. If I thought I did not know, I should begin to wonder if I am sure of any thing, even my own existence.

It is a splendid thing to have journals in which we can agitate these questions, cause our brother bee-keepers to think as they work, experiment as they go, all of which will certainly lead to great improvements, and we shall all finally know what is best. JAMES HEDDON.

Dowagiac, Mich., Feb., 1890.

Yes, friend H., we are impatiently waiting for time and experience to convince us fellows. I wish the bees wouldn't be so long about telling, or, rather, letting us find out about all these good things. But, say; if you space $\frac{1}{8}$ -inch bars only $\frac{1}{16}$ inch apart, won't the bees object? Cheshire, and he is backed up by Dr. C. C. Miller, says the average width of comb is $\frac{1}{16}$ of an inch thick. The surface of the comb, on the average, will be only $\frac{1}{16}$ inch apart. No, I would rather have top-bars an inch or $1\frac{1}{16}$, spaced $\frac{1}{16}$ apart. The comb surface will then be respectively $\frac{1}{16}$ and $\frac{1}{16}$ inch apart. These distances are about right; but $\frac{1}{16}$ is a little close, is it not? Now, I am not saying that you can not space as close as this, but am only asking for information. With regard to your shallow brood-chambers, if you make them deeper to accommodate the deeper frame, you will have confusion, and your customers in ordering will get the two mixed.—Yes, sir, bee-journals are doing a splendid thing in agitating these new things, and then afterward collecting and sifting the facts for their readers. E. R.

COLONIES OUTDOORS.

A POSSIBLE CAUSE OF EARLY FLYING IN SPRING.

Friend Root:—The present winter has led me to consider a question which, to me at least, is new. My bees wintered in clamps outside are often, I should judge, on the verge of flying out, yet remain in the hive. Last week I had occasion to render a quantity of cappings and old comb, and it led me to wonder whether the smell of heated honey and wax would, with the mildness of the weather, cause the bees to be restless, and perhaps injure them. Is it not probable that, when almost warm enough for the bees to fly out, the smell of melting wax and warm honey will disturb the bees in the hive? If this is the case we should be very cautious in the matter. Perhaps some of our bee-keepers can give us conclusive evidence here.

COVERS, FLAT OR DEEP.

I should just like to have a few words upon Question 153. I can not see how, all in all, any one can prefer a flat cover with only a bee-space above the bars. Some of the arguments in favor of a large cover are, that they act as a break against the sun in summer, and assist to keep the bees cool. I would even use a chaff cushion all summer for this purpose, and I know of some very successful beekeepers who are doing this.

Again, in spring, with a flat cover you have no chance to protect the bees from cold above unless you put supers on—a thing not desirable. In the fall, the same holds good. The only argument I can see in favor of a small lid is the cost, and the bulk in handling and storing away. The lids I value most are large sloping-roofed covers on eight-frame Langstroth hives; the covers are about 2 x 3 ft., made by nailing shingles on a framework, and with a piece of tin along the ridge at top. They cost little; they shade the hives very much, and press well down on a chaff cushion between them and the hive. The cushion is left on all summer.

R. F. HOLTERMANN.

Romney, Ont., Can., Feb. 24, 1890.

It may be true, that the smell of melted wax and warm honey would cause the bees to fly earlier than they ought; but with us we do not care much when the bees fly out, providing the weather is warm enough so they can. But in your locality the case would doubtless be different. Those bees that fly out during cold days are probably diseased, and their presence in the colony is not very desirable any way.—In regard to flat covers, we prefer them because they are cheaper, because they can be fitted on to the hive without killing the bees, no matter how much the hive edges are covered, by a sliding motion, and because a majority of our customers call for them, and because many of our very best and most extensive beekeepers will use nothing else. Yes, there is something in having a chaff cushion over the brood-nest for a protection; but in your locality there will be greater need of it than in ours, probably. Another thing, if you have a cover that leaves more than a bee-space over the frames, burr-combs will be built up sometimes two inches above the brood-frames if thin top-bars are used. With flat covers they can not be built in more than $\frac{3}{8}$ of an inch; still, if the beekeeper prefers to have the cushions he can nail the flat cover to his half-story body or section-super, and then he will have a "deep cap," as some call them. E. R.

PINE-TREE HONEY A SECRETION OF APHIDES.

PROF. COOK GIVES US SOME LIGHT ON THE SUBJECT.

Mr. A. I. Root:—I have read several items in your journal about pine-tree honey. The time of year for this honey is the first of June, or thereabout. But this has been an unusually warm fall and winter, so the insects that produce this honey have hatched out of season; so I think, and I believe you and Prof. A. J. Cook will agree with me. If you were here and would go with me out to the pine woods you would soon be convinced of the

fact as to where honey-dew comes from. These insects are so thick on the pine-trees that they resemble the shingles on a house; and if you will get them between you and the light, you can see the spray of nectar, just like small drops of rain; and the way bees gather it is not "just a little and quit." I will send you a box of the aphides, so I take them to be; and if they get to you all right, just warm them up to about 70° above zero, and see for yourself. Will these insects mature and come again in the spring, or at the usual time? Let us hear from Prof. Cook on this subject.

Soddy, Tenn., Feb. 8.

N. R. HAIR.

We sent the above to Prof. Cook, who replies:

The aphides, or plant-lice sent by N. R. Hair, Soddy, Tenn., were a sorry sight when they arrived. Two or three syrphus-fly maggots, which were inclosed with them, had eaten them nearly all up. A few shrunken lice remained—enough for me to determine that they belonged to the genus *Lachnus*, the same that are figured in my last edition of Bee-Keeper's Guide, but not the same species. I am not surprised to know that these pine-lice secrete much nectar, and I should not be surprised if the honey from this were excellent. I have secured honey from a species of *lachnus*, on the larch, and from another on the spruce, which was really very pleasant. You will remember, Mr. Editor, that some pine-lice from Oregon secreted enough nectar so that the leaves were fairly coated with sugar. I wrote for the press an account of these Oregon lice, specimens of which were on the sugar-coated twigs, whereupon Mr. Thomas Meehan called my statement in question. He said the pine itself secreted sugar in Oregon. In the special case, I was sure of my ground. I infer that Mr. Meehan was in error, and that in every case it was the insects and not the tree that formed the sugar. It is not strange that the mistake—if mistake it be—was made. I have noticed the lower twigs and leaves of the larch to be fairly sprinkled with nectar from the larch-lice when no lice could be found except high up in the tree; and even there the lice were on the under side of the twigs, and would easily escape notice, especially as they mimicked in color the twigs on which they rested, almost perfectly. Yet I have seen the drops of nectar falling like a shower from these lice, and lodging on the lower leaves. I have frequently set students to looking for the source of the nectar, and rarely would they discover it till told to look sharper and higher up.

Mr. Hair is correct regarding the reason for the early appearance of these lice this year. The warm weather in Kentucky and Tennessee has hatched the eggs prematurely, and hence the early appearance of the lice. Only the other day I received specimens of the grain aphid from Tennessee. Very likely cold weather may yet check and even destroy outright these unseasonable lice. For by the aid of their insect-enemies—three were inclosed in the box—they may be wiped out as were the grain lice the past summer, even though cold does not use them up. The case is too complex to warrant prediction.

A. J. COOK.

Agricultural College, Mich., Feb. 11, 1890.

I am inclined to think that friend Cook is right in the matter, and that, even though many have been unable to discover aphides, they are still there somewhere; and the

keen earnest searcher after nature's truth will find them. Here is another short item from a friend, who seems to think it is not produced by the aid of insects.

NECTAR FROM PINE-TREES.

I have noticed the pine honey for several years, but never so plentifully as this winter. During the latter part of December the pines on the mountains fairly roared with bees gathering this honey, which hung on the pine leaves in drops as large as a large dewdrop. It is very clear, and of good flavor. I have not taken any, but I suppose my bees gathered from five to ten pounds per hive. Had bees been as strong as in summer, no doubt I should have had a good yield of honey. It seems to be mostly on short-leaved or mountain pine, and I think it is an exudation, and not the product of an insect. Bees have been at work most of the time since Dec. 20 on pine honey-dew, alder, and red-mable bloom.

J. A. CLEMENTS.

Green Bush, Ga., Jan. 30.

THE LANGSTROTH HIVE IN GERMANY.

How and Why it has Lately Come into Popularity.

C. J. H. GRAVENHORST'S OBSERVATIONS.

SINCE the days of the late Mr. Samuel Wagner, I have watched the progress of bee-keeping in America. I remember with pleasure the time when Novice wrote his encouraging articles in the old *American Bee Journal*, telling us how he had found out something new in bee-keeping, and how he had then, in his enthusiasm, thrown up his cap toward the sky. It was a good old time, and much has since been done to advance bee-keeping, both in America and Germany, not to mention other countries. No doubt our American friends have learned something from their German brethren, particularly in regard to the *theory* of bee-keeping; but, on the other hand, the Germans have learned, also, from their friends in America. I have tried to effect this since I became acquainted with the American bee-papers.

Of course, friend Root, you know that the Germans did for a long while object to the Langstroth hive. They could not become used to the arrangement of the frames in it. Our German frames are nearly of the same size as the Langstroth frames, which are put into the hives having one long side toward top and bottom, while in the German hives the frames are put in with one short side toward the top and bottom. We were of the opinion that the bees must have their stores overhead, as in a hollow tree. But the American and other hives have proved that this is a mere theory.

Another objection against the Langstroth hive was its movable cover. One would say, "If the Americans, putting their stocks in order in the fall for wintering, remove the sealed-down packings, there will be left openings, letting out the heat, and the bees will not winter well. More especially would the bees suffer by spring management, as the openings in the top of the hive would be the reason of your spring dwindling." I think, and other Germans too, this is also mere theory; at least, there are many means of avoiding bad wintering as well as spring dwindling. So far this should be the con-

sequence of fall and spring management, and not that of *bad* stores. Therefore I hope, friend Root, you will be glad to hear that the prejudice against the Langstroth hive is more and more disappearing in Germany, and that here and there it has become a favorite. I myself have beside my hives (*Bogenstueclper*), some Langstroth hives, and am well pleased with them. If you could see my Langstroth hives, friend R., you would, of course, say, "Well, friend G., those are genuine Langstroth or Simplicity hives, tiered up and furnished with sections, etc., just as in America." Certainly, friend R. I would say you are right, up to a certain point that I will explain to you, and one that has much to do with the fact that the Langstroth hive, here and there, has become a favorite in Germany. That the top-bars of my Langstroth frames have no shoulders, will be, so far as I know, not new to you. But you see on the front side, also on the back of every hive, two rows of ear-pins in notches—one row near the top, and one just above the entrance. These pins are wire nails that go from the outside to the inside of the hive, holding the frames in position. Every frame requires four nails—two on the under side of the frame, to rest upon, and two above the top-bar, holding the frame down. These pins go through the wall of the hive, $\frac{1}{8}$ of an inch from the edges, on top and bottom. They rest in V-shaped notches in every corner of a frame. These notches are $\frac{1}{4}$ inch deep and $\frac{1}{2}$ inch long, leaving, above and below the frames, a space of $\frac{1}{8}$ inch, if the frames are fastened in the hive. By this arrangement the frames stand in the right position from the wall, having a fast support. The nails do not allow the frames to move in the least, even if you turn the hive top side down, as the whole hive, as well as every frame, is reversible. In managing the hive you will first take away the cover-board. This has underneath it a space of $\frac{1}{4}$ inch; then open the hive as you are accustomed to do, and you will at once seize with the right and left hand an ear-nail, one in front and one on the back, near the top of the hive, and pull them half way out, but not more, so that you may get a frame without hindrance from the nails. The frame rests now on only the two pins on the bottom, and you may lift it out without trouble. But if you are anxious to destroy a queen-cell, etc., then you may pull out the four nails of the two adjacent frames, and then you have more space to get at a frame than you need.

I hear you ask, friend Root, why I prefer this nail arrangement. Although I am sure to know some of the objections you will have to the nails. I hope you will not deny that the advantages of them are greater than the disadvantages. I answer your question, first by quoting Ernest in *GLEANINGS*, page 99, Feb. 1: "Where bee culture is carried on to any considerable extent, a system of one or more out-apiaries is almost the inevitable result, and out-apiaries means *moving bees*. The hanging frame not fastened, although bees *can be* moved to and from out-apiaries on it, necessitates careful driving and good roads. Our men during the past season, in moving bees, could drive no faster than a walk, and that with extreme caution in places. With a couple of expensive men, one a teamster and the other a practical bee-keeper, to say nothing of a valuable team, slow driving, all because the frames are *hanging and not fixed*, is expensive. To stop and stick up each frame in a load of 35 colonies, simply for the sake of driving fast afterward,

is just as expensive. What we want is frames *always* fixed, always ready for moving at a brisk drive, and yet sufficiently movable to be readily manipulated in the hive."

Second: The hive as well as every frame is reversible. You can turn the hive over, and manage your bees from below, if you like it, and this I value in the highest degree. After the honey season is over, toward the fall, the bees have sealed down beautifully the top packing for the winter. Not to disturb their winter arrangements in the fall as well as in the spring, the hive is to be simply turned up. You lift out whatever frame you desire, and put in one or two division-boards, or exchange this or that frame with such a one as has plenty of honey, and so on. Hereafter you turn your hive again, placing it on the bottom-board, and your bees have their arrangement just as they think it necessary for good wintering. Now comes the spring. I remember you said once in GLEANINGS, it would be of great value, at times, to get a glimpse at the bottom of the hive. I think you have hit the nail on the head. If you turn the hive over, whatever is to be accomplished in that way, let the top-bars stand with one end toward you; then you will see at a glance how many combs are occupied by the bees; how strong the colony is; and the weight of the hive tells you how it is with the stores. There will be no draft going through the hive from the entrance, as in the case of removing the top packing, and taking away all the heat of the hive. You need not be afraid of injuring a colony by taking a glimpse at the bottom of the hive, even when the weather is not warm; you need not even fear early spring management. Less than one minute is sufficient to ascertain how it stands with a colony, if you turn a hive over.

As soon as the weather becomes favorable, say in swarming time, you may manage your bees from the top of the hive, except the swarms you have hived. At such times I fasten the top packing, as the swarms need the warmth, especially on cool days and nights, and turn the hive over; give five, six, or more frames, with strips or sheets of foundation, adjust the division-board, put in the swarm, and bring the hive to its right position on the bottom-board. Two or three days afterward I turn my hive bottom up, give a little smoke, and I see then what my swarm has done. If it has built crooked combs or drone combs, then I take a knife that has a sharp hook, one inch long, and a long handle, and cut away the drone comb or fix the crooked combs. In most of the cases that will do it; and if not, there is not any trouble in lifting out those frames with drone or crooked combs, so as to fix them in my hands. In nine cases out of ten it will not be necessary to do this. One who does not like turning a hive over does not know the advantages of it. I would rather give up bee-keeping than not be able to turn my hives over to handle them. I am sure, if some one has the inverting system put to the proof, he will soon like it: and if not, he may manage his hives from above only.

Friend Root, I am sure you will not misunderstand my article. I have told you how and under what conditions the Langstroth hive has made friends in Germany.

C. J. H. GRAVENHORST.

Wilsnack, Germany, Feb. 17.

Many thanks, dear friend G., for your very kind letter. Yes, I remember well when I sailed my hat when so much honey

had come, and I remember the time, too, when the hat went up into a tree and we had quite a little time in getting it down again. I am very glad indeed to know you are using a frame so near the universal Langstroth used in our country; and your arrangement for reversible frames and reversible hives is certainly exceedingly ingenious. Of all the models that have been sent us, I do not now think of one that accomplishes the result more perfectly than does yours. There is one difficulty that suggests itself, which you have doubtless obviated in some way. This difficulty comes from Ernest. He thinks if those nails move loosely enough to be handled by the fingers, in drawing hives to out-apiaries the nails would slip when we do not want them to, and let the frames down. Thumb-screws with a very coarse thread would stay at any point; but they would be more expensive than nails, and slower to manipulate. Yes, I have often thought of the advantages of turning the hive over to remove the frames; but I feel pretty certain that our American people would consider it too much bother and too much machinery. Lest some of our readers may not get hold of your idea, I will explain that you use the Langstroth frame, without any projections for the frame to hang on. Next, the end-bars to every frame have a V-shaped notch cut in each end. The nails going through the end-board to the hive, reach through into these notches. In order to remove the frame, the upper nails must be pulled back sufficient to allow the frame to lift up. Perhaps some of our friends may think best to test a hive or two made in this way.

BIOGRAPHICAL.

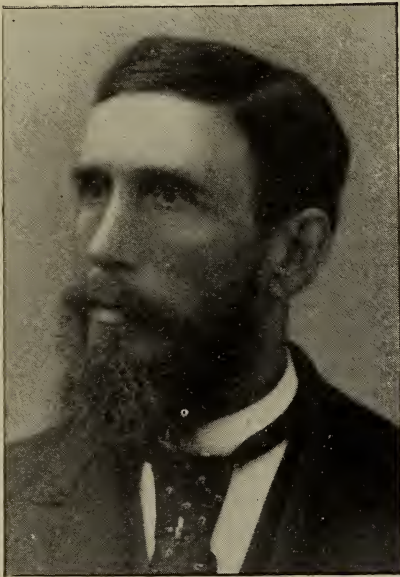
H. R. BOARDMAN.

In our last issue, page 152, I gave you a new portrait of James Heddon. I take great pleasure now in presenting to our readers another half-tone portrait, which is also to appear in our A B C, of a no less prominent and no less distinguished bee-keeper — Mr. H. R. Boardman, lately president of the Ohio State Bee-keepers' Association. Just before the said association was called to order, and while we were lamenting that our president, on account of illness, probably would not be in attendance, Dr. Miller said, "Mr. Boardman has always impressed me as being a solid man." Several nodded a hearty assent, Dr. Mason among the number. Later, when Mr. Boardman had finished reading his essay, we were more impressed than ever with the truthfulness of Dr. Miller's opinion of him. It has been my pleasure, as you will remember, to make our friend a visit. I stopped with him something over a day. I remember that the impression left with me was, that he was a very careful observer, slow in arriving at conclusions, and that, when he did come to one, he was pretty sure to be right.

Some years ago we gave a portrait engraving of "the man who always winters his bees," and that was the subject of this sketch. At that time, when everybody was

losing quite heavily, it seemed very remarkable. At the present time the wintering troubles do not seem to be so perplexing. Whether our friends of the indoor preference have followed in the wake of Mr. B., or through their own investigations have adopted the same plan, and hence are successful, I can not say; but certain it is, our friend was among the very first to be able to assert that he always wintered his bees. For a detail of his method see GLEANINGS, page 319, last year.

As I have already hinted, Mr. Boardman is not much inclined to run after new things. If he is successful with what he has, he is content to let well enough alone. He uses a frame which is essentially square. I believe when he first adopted this he considered this as one of the reasons why he wintered successfully; but latterly, he has not attached very much importance to the size or shape of the frame for successful wintering.



H. R. BOARDMAN.

Mr. Boardman runs a number of out-apiaries, and I believe he keeps on an average some 300 or 400 colonies. He produces comb honey almost exclusively, and that in wide frames three tiers deep. Instead of putting on a single tier of sections, and afterward raising it up and putting an empty one under it, on the tiering-up plan, he puts the three tiers on *all at once*, aggregating some 50 sections. Most bee-keepers think that that is too large a capacity for the bees to begin on, and keep to the proper temperature for comb-building. Our friend admits, I believe, that there is something in this, but he argues that he saves a good deal of time and labor in putting on a full hive of sections at once and afterward removing the whole at one operation.

Mr. Boardman's manner of contraction is

peculiar, and, I believe, original with himself, although others have advocated a similar practice. His hive is side opening, and, to force the bees to carry the honey above, he cuts out the combs in the brood-frames, leaving, perhaps, a third of the comb at the top. Honey coming in, the bees are obliged to carry it above. In the mean time, the queen's capacity for laying is restricted, and the swarming mania is kept down.

Mr. B. does not write very extensively for the bee-journals, although he is a good talker, and full of ideas. He is prominent at conventions, and while he has the floor he is careful and reserved in his statements.

When I visited our friend I was surprised to note that he was considerable of a naturalist. He has a large collection of stuffed animals from all parts of the United States. I was once somewhat interested in taxidermy, enough to appreciate good work when I saw it. Mr. Boardman's specimens are lifelike, and seem to possess all the ease and grace that nature has so kindly endowed them with while breathing God's pure air.

I am well aware that I have said some things in rather high praise of our friend; but he is a man who will not be spoiled by praise. Mr. Boardman is one of Ohio's most prominent bee-keepers. ERNEST.

PREVENTION OF INCREASE.

DOOLITTLE SUGGESTS THREE METHODS OF SECURING IT.

NOTWITHSTANDING the articles which I have given lately, on keeping bees from swarming by the manipulation of hives, etc., I am still requested to tell, in GLEANINGS, how increase can be prevented by some of the older plans which I have successfully used in the past. As the swarming season will soon be here, if it has not already begun in the South, owing to our very warm weather during the whole winter, perhaps I can do no better at this time than to comply with the request. The plan of preventing increase, which has given me the best satisfaction of any thing which I have ever employed, is as follows:

Early in the spring, before the bees get brood in more than three or four combs, shut each colony on to five combs by means of a division-board; and if these combs can contain brood and honey in the proportion of three of the former to two of the latter, they will be in just the condition I would have them, the two latter being nearly solid with honey. By thus being filled with honey we are assured of two things: That they will not need our immediate attention for fear that they will get short of stores, and that brood-rearing will go on without interruption, no matter what the weather may be, with so much honey in so small a brood-chamber; for, early in the spring, before honey comes in from the field, a large amount of honey is a great incentive to brood-rearing. As the combs become filled with brood, combs of honey are set in the vacant space beyond the division-board, so that there will be no danger of the bees starving when the combs they occupy become so full of brood that there will be no place for honey in them. If some of the colonies get their five frames full of brood before the others do, take a frame of hatching brood to the weaker, and give the stronger an empty comb, or

one of honey, taken from the weaker, and so on till all have their five frames absolutely filled with brood.

If you have been as successful as you should be, this point in the operation will arrive from two weeks to ten days before the honey harvest, you aiming to have it be thus from the start, just in accordance with the location you occupy. When all are thus full of brood, go to hive No. 1 and look the frames over till you find the queen, when you will set the comb she is on outside of the hive, and carry the other four combs of brood, bees and all, to hive No. 2. You will now open this hive and spread apart the frames so as to set the combs you brought from No. 1 in each alternate space; for by so doing there will be no quarreling of bees; at least, I have never known them to fight, during a period of 16 years' practice.

When you have the combs thus arranged, the surplus arrangement is to be put on, and the hive closed. You will now go back to No. 1, put the frame having the queen on it back in the hive, and give them a frame having a strip of foundation $\frac{1}{2}$ inch wide fastened to the center of the top bar for a comb guide, when you will adjust the division-board to suit the size of this little colony, and close the hive. If there is any honey coming in from the fields, which there generally is at this time, although the main flow has not commenced, you will find the nicest worker comb you ever saw in this last frame at the end of a week, and it will cost you less than you could get the same comb built from foundation. When this frame is filled with comb, take it out and put in another empty frame, and so on all summer; for the one comb the queen has will give bees enough to keep them in excellent order so that they will build worker comb all the time. In this way I secure all the combs I need in the apiary, and in the fall unite several of these little colonies together, or give them to some of the weakest of the other colonies I may chance to have. The colony in No. 2 soon has a hive full to overflowing with bees, of just the right age to work in the harvest to the best advantage, and will roll up a pile of honey, I assure you. When they swarm they are to be treated the same as you always have treated the swarms, so that, should all swarm, you will have only the same number that you did in the spring, thus preventing increase.

The next plan which I use is that of caging the queen upon the issue of the first swarm, and placing her on top of the brood-frames or any other convenient place, and allowing the swarm to return. Six days thereafter the hive is opened, all the queen-cells cut off, and the queen left where she was, for eight days more. At the end of this time the queen-cells are again taken out and the queen liberated, after which they seem to have no more desire to swarm that season. In cutting out the queen-cells I shake the bees off the combs each time, and in this way no cells need ever be missed. If this precaution is not taken, cells will often be missed, which will cause much trouble. While the queen is caged, the bees will store honey to a certain extent in the brood-combs, in cells from which the young bees hatch; but when the queen is liberated this honey will be carried to the boxes, and I do not know that I have ever seen work progress faster in the sections that I have for the next week after the queen was returned to the bees.

The last one of the plans is the one recommended

by Prof. Cook; namely, when the first swarm of the season issues, it is hived in a separate hive, when the next one is hived with the old colony from which the first one issued; the next is hived where the second came from, and so on to the end of the season, thus giving us only one increase. This plan works well with a short and rather poor season; but when the season is long continued, many of the colonies first treated swarm again with me, thus making too much work. On the whole I much prefer the first plan.

G. M. DOOLITTLE.

Borodino, N. Y.

SHALL WE USE QUILTS OR ENAMELED CLOTHS?

DR. MILLEK HANDLES THE SUBJECT IN ALL ITS BEARINGS.

I HAVE been quite interested in studying the answers to Question 152. The answers are about two to one against the use of enamel cloth, in the production of comb honey, under a flat cover, in a five-sixteenths space. On the other hand, about two to one are in favor of using the cloth in the same place for queen-rearing. Some are quite positive that the cloth should be used in both cases, and some just as positive that it should be used in neither, while some think it should be used for queen-rearing but not for comb honey.

I am not surprised at these different opinions, for at one time or another I think I have agreed with all, and I suspect that, with exactly the same thing in mind, the different respondents would have very little difference of opinion.

When I first commenced using movable combs, a flat board with holes in it, called a honey-board, was placed over the top-bars, with a $\frac{3}{8}$ space between and an outside cover above. A pretty solid mass of brace-combs and honey filled the space between the top-bars and the honey-board, so that, every time the hive was opened, the honey-board had to be pried up, the jar thereof greatly irritating the bees and making a daub mess. On closing the hive again it was difficult to keep from mashing bees between the brace-combs as well as at the edges. Those who never used exactly the same thing can hardly imagine what a boon was the sheet, or quilt, invented by Robert Bickford, and I can readily excuse those who had been through my previous experience for being hard to convince that quilts could be dispensed with under any circumstances. Please understand, that the quilt took the place of the solid honey-board, the same outside cover being used over either. The principal difficulty was the lack of durability, no substance being found to answer well the purpose, through which the bees would not gnaw holes in a provokingly short space of time. In spite of this objection I think I should have continued to this day to use quilts had I continued to use the same kind of covers. Those who object to quilts because harder to remove than flat boards, can, it seems to me, hardly speak from actual experience; or if they do, there must have been something wrong about their experience. After I began to use Heddon and T supers, I noticed, in tiering up, that the upper super was not so free from propolis as those under it. After a time it occurred to me that the quilt was the cause of the trouble, for the bees were sure to put propolis upon the tops of the sections under the quilt, sometimes more than an eighth of an inch

in thickness. Sometimes a ridge of glue would extend clean around the edge of the top-bar of the section, providing the quilt lay flat upon it; but often it was plastered over any part of the top, depending upon how the quilt lay upon it. Reluctantly I concluded to try whether I could dispense with the quilt over the sections, and had a few cleated covers made to fit the supers, with no thought of using any thing of the kind on the hives. The result was so satisfactory that I had covers enough made to supply all my colonies. I suppose, friend Root, I was just as strongly in favor of quilts as you, but I feel pretty certain that, after enough experience both ways, you would say you never want any quilt over a T super, even if you should continue to use them directly over brood-frames. You say, "The great reason why I prefer enameled-cloth sheets is, that the hive may be opened and closed without killing bees." In the case before us, with the five-sixteenths space over the sections, I'll agree to put on the board cover without killing a bee, and I'll do it in less time than you will put on the cloth and cover, if you don't kill any bees. You see, there is no chance to kill any bees with the board alone, except on the upper edge of the super rim, and you can put on one end of the cover and then play it up and down a few times as you gradually close it, and every bee will get out of the way. As you very properly say, "It takes time to replace the enameled cloth in such a manner that not a single bee can get above it." And then after you have taken time to accomplish this, if you promptly put on the cover you are quite likely to imprison some bees between the cloth and the tops of the sections. I know, for I have done it. You say, "It is worth a good deal to me to be able to pick up any cover from any hive in the apiary, without any snapping or prying." True; and it's worth no little to me, as I lie in bed at night, when the wind is blowing great guns, to know that my covers are all glued down, and that I'll not have to hustle around in the morning to cover up hives in the out-apiaries, which the wind has uncovered, letting in the drenching rain. You say, "The enameled cloth also prevents the bees from pushing up burr-combs above the tops of the frames." Why, Mr. Root, the—what are you talking about, any way? I have scraped off pounds upon pounds of burr-combs that the bees had built over the brood-combs, pushing up the quilts to do so as much as half an inch and even an inch! In the case before us they could not do so, for there is only a five-sixteenths space.

For queen-rearing it is certainly nice to peel up a cloth; and yet if only a five-sixteenths space is to be allowed, I think my answer is wrong, for I am quite sure a good many bees would be killed by the cloth. I certainly would want a larger space if using a cloth, unless, indeed, the possibly coming heavy top-bar prevents all brace-combs above the brood-frames, in which case I think I should dispense with cloths, even for queen-rearing.

Marengo, Ill., Feb. 1.

C. C. MILLER.

Friend M., some of the quotations you make were expressions I made a good while ago—at least it seems a good while as I read them just now. Another thing, my experience was mainly with hives for queen-rearing; and in sending off nuclei we have been in the habit of taking pretty much all of the honey stored, about as fast as it comes—

that is, as fast as it comes when the colonies are divided and subdivided whenever they get strong enough to bear it and preserve enough bees and brood to take care of the queen. Another thing, this matter of wide and thick top-bars seems to be tearing up every thing; and I confess that I can not imagine how it is, that, when we did have great heavy wooden top-bars, fifteen or twenty years ago, nobody discovered that, if made of just the right dimensions, they would effectually do away with burr-combs—too wide and too thick, as it seems to me. Over them was just the kind of a honey-board you describe, on which to place the boxes. Now, this honey-board, so far as I can remember, was just about a bee-space above the top-bars; and yet, whenever a honey-board was removed, there would be so many burr-combs filled with honey that one could scarcely see the top-bars at all. Having such a mass of honey and wax every time we wished to take out the frames was such a daub and a nuisance that I gladly welcomed the quilts, as they prevented it; and we used the enamel cloth for years after, with great satisfaction. We are now going back to almost where we were years ago. This is not only true of top-bars, but other things, also, are swinging around in the same sort of way. Even the Peet cage, that has been of such benefit year after year, is to be laid aside, and something very much like our old-fashioned one substituted—at least, the boys are recommending something of the sort; but notwithstanding all this, we are making progress. Our implements are becoming cheaper and simpler and *cleaner*. I think, however, it behooves us to go slow, and to be careful about throwing away some new things, and going back to old ones.

A PROTEST.

AUTOMATIC SWARMING AND CARNIOLANS.

WHILE Mr. Alley and others are disputing about the self-hiving arrangement, and Mr. Doolittle is giving advice concerning other arrangements for hiving the bees without having them swarm, I wish to protest against the whole arrangement as being unsatisfactory and entirely too expensive. None of the plans suggested can be made a success without an extra hive for every colony of bees owned by the apiarist practicing such methods. Hundreds of bee-keepers have all the bees they want, and it is no more expense, and a good deal more satisfactory, to keep a good hand in each out-apiary than it is to have a couple of hundred dollars' worth of empty hives around, watching for just what we don't want—swarms.

The most of these teachers are queen-breeders. They encourage the swarming impulse in their breeding operations, and send their queens to all parts of the country, diffusing this swarming mania wherever they go. Why not spend more time, thought, and energy, in producing strains of bees that are indisposed to swarm? In my first experience with bees, a noticeable feature was, that some colonies were predisposed to swarm, while others were just as determined not to swarm. Our increase came from the swarms, while the greater

part of our honey came from colonies that did not swarm.

Fifteen years of practical experience with bees has caused me to believe that, with proper care in breeding, the swarming disposition can be almost entirely done away with; and what is better, too, we can make our increase when and where we want it, and our supers are not deserted just when we least desire it. On the 5th of May, 1878, a fine swarm was cast from a colony in my apiary. Seven days later, young queens were piping in the old colony, indicating another swarm. I divided them to prevent their swarming. In July these three colonies each cast a swarm; and the one cast on the 5th of May cast a second swarm, making an increase of five from one. Other colonies did not swarm at all that season.

BAD FOR CARNIOLANS.

In May, 1889, I procured an extra-fine Carniolan queen from prominent parties. This colony gave me more bother about swarming than a hundred colonies of Italians; for when the honey-flow ceased, the Italians quit swarming, but the Carniolans consumed their stores in brood-rearing; and although they had swarmed during the honey-flow, they swarmed again at a time when there was not enough coming in to enable them to build comb. Yet these breeders tell us that they have no more trouble in controlling the swarming impulse of the Carniolans than they do that of Italians. But if we read their instructions as to how they manage their breeding-apiaries, we find that their breeding colonies are kept at a fever heat, crowded and fed so as to have them swarm early and late and often, for the purpose of securing queen-cells under the "swarming impulse." Not only this, but a higher value is placed upon queens produced under this swarming impulse. Away with this nonsense! and away with your patented or unpatented device for hiving swarms or increasing the number of colonies! Give us queens from the non-swarming strains. If properly reared they are just as prolific; they will live just as long; they are just as pretty, and are worth a hundred per cent more than your swarmers, because they will stay in the hives and keep the bees there during the honey-flow.

S. A. SHUCK.

Liverpool, Ill. Feb. 20.

Friend S., there is some truth in what you say; but don't you step pretty hard upon the toes of some of our good friends? I have felt as if there were a good deal of machinery to these automatic hiving-arrangements; but then, there *may* be a good deal in it. Let us wait for the unbiased judgment of next season. Carniolans,—well, they *do* swarm excessively—at least they have been so reported a good many times. The last we tried swarmed, and stung like hornets. The first we tried swarmed likewise, but they were not so cross. E. R.

In addition to the above I wish to emphasize the point that friend Shuck has brought out. Even if automatic swarming should be a success, extra hives must be provided for each colony that is liable to swarm, and an extra swarming-machine also. Now, where a bee-keeper does not desire increase this will be quite an expense over the ordinary methods of having somebody look after the apiary.

THE OHIO STATE BEE-KEEPERS' CONVENTION AT CLEVELAND.

RECOLLECTIONS OF WHAT WAS SAID, AS REPORTED BY ERNEST.

As was previously announced, the convention assembled in Cleveland, in the council chamber of the City Hall. The room was large—in fact, nearly as large as the senate chambers in some of our State capitols. While it was elegant as well as commodious, it proved to be a little too large for the average speaker to be heard distinctly. In this connection let me say, that, from what conventions I have attended in large halls or rooms, I am of the opinion that it would be better if we could have a smaller room—say one that would seat 100 persons for our State conventions and 200 or more for our International.

There were about 75 bee-keepers present at the morning session. The largest number at any one time was something like 90. This number included some quite prominent bee-keepers, among them being Dr. C. C. Miller, Dr. A. B. Mason, H. R. Boardman, S. F. Newman, J. B. Hains, O. J. Terrell, Mr. Spittler, F. A. Eaton, Miss Dema Bennett, Dan White, Mr. H. F. Moore, Dr. G. L. Tinker, Chalon Fowls, Dr. H. Besse and others. Mr. Boardman, although not present at the opening of the meeting, came in a little later. We were previously informed that the president would probably not be in attendance, on account of ill health, and accordingly Dr. Miller, who had honored us by his presence, was invited to act as chairman, which he did until the president arrived. Among the first subjects that came up was:

THE PRODUCTION OF COMB AND EXTRACTED HONEY; SHALL THE TWO BE PRODUCED TOGETHER?

It was generally agreed that the two could be carried on successfully, but that it will depend upon the locality and the market as well as upon the man. H. F. Moore, of Cleveland, who has sold tons of honey in a wholesale and retail way, found that, where bee-keepers produced *comb honey*, there was less suspicion of the *extracted honey* being adulterated. The question then turned upon the matter of preparation. If the bee-keeper is prepared in advance to produce either comb or extracted honey, he should run for one or both, according to circumstances. The question was then asked, "What is the preparation?" Dr. Miller said, "Order your supplies early."

"How early?" some one asked.

I replied, "About six months." But some of the old bee-keepers said that they wanted their supplies *before* that time.

The discussion finally turned upon extracted honey. J. B. Hains always extracts from light-colored combs. Dr. A. B. Mason did not believe that it made any difference. O. J. Terrell never extracts from the brood-nest. Dr. Mason does, when he thinks he can do it safely.

You know, when bee-keepers get to discussing a thing at conventions, in spite of the president's efforts to keep them in one channel of thought they will sometimes

switch off on to another question; and, although regularly out of order, some most valuable points many times are brought out.

I can not remember just how it came up; but at any rate the question assumed somewhat this form: "Are not the successful bee-keepers those who have their wives help them in the apiary?" Prominent among the number, F. A. Eaton thought that wives are a necessary adjunct to an ordinary apiary; in fact, he said he could not get along in his apiary without the assistance of his better half. Dr. Mason would not oblige his wife to work among the bees. Dr. Miller did not agree: it depended upon what they did. When the women-folks had not been in the apiary for two or three days, things got "awful disorderly." If they did not visit the shop every so often, things got into bad shape. When we come to the neat part, women are the best—"better than a horse." Dr. Mason urged that it was not necessary for bee-men to be slovenly—they may just as well keep things neat as not.

Somehow or other, at this stage of proceedings, somebody—I guess it was Dr. Mason—suggested that there were members present who had not paid their annual dues—50 cents. He did not want anybody to come and "absorb" without paying for it. Just then Dr. Miller said it was worth 50 cents to hear bee-men quarrel about their wives.

Along about this stage of the proceedings we had the pleasure of having one of those bee-songs, the words of which were composed by Eugene Secor, and the music by Dr. C. C. Miller, rendered by Dr. M. himself in his usual characteristic wav. Again, I noted that the music had an effect in enlivening the subsequent discussion.

REVERSING.

This was next discussed by Chalon Fowls, of Oberlin. Mr. Fowls is one of the most enthusiastic bee-keepers. I well remember, that, when I was a student at Oberlin, he used to come and talk over some of his views on bee culture. He always had some hobby, and latterly it was reversing, and is yet. Mr. Fowls in convention thought it paid him in dollars and cents to reverse; he could get more brood, and consequently raise more bees in *one brood-chamber*, and have them ready for the season when he wanted them. He also averred that he could, to a certain extent, prevent swarming. He never allows the brood to hatch in the upper part of the frames. Just as soon as the lower part is sealed over he reverses, which causes the bees to carry up the honey, and leave the cells empty for the queen to fill with eggs, which she does. As a result, the young bees hatch out at the bottom of the frame, while the upper part is filled full with sealed or unsealed brood as the case may be. He did not think that reversing killed the imago queens in capped queen-cells. That theory, he thought, was all nonsense. As to the matter of swarming, it prevents it to a certain extent, for the reason that it gives the queen more room in which to lay. There is, perhaps, something in this statement. Mr. E. France

once said in GLEANINGS, that, if the queen has all the room in which she can lay, and not be crowded, the bees will not be likely to swarm; but to give her plenty, it is usually necessary, under ordinary circumstances, to give her room in the *upper* and *lower* story; but Mr. Fowls endeavors to give the queen all she needs in the *lower* story, by reversing. The next question was

REVERSIBLE EXTRACTORS, BY DR. MASON.

Although an extractor man, he had never tried reversing-machines. I believe he said he had seen one in use, and liked its operation. Not having had practical experience himself, he read a number of extracts from GLEANINGS, from those who had used them. On the whole, the doctor liked reversible extractors; and, if I remember correctly, he was going to purchase one for next season's use. Dan White said the trouble was not so much in the *extracting* as in getting combs *uncapped*. For him, a two-comb machine would do the work as fast as or faster than an assistant could uncup. Some way the convention got to arguing pretty earnestly on the theory of large and small extractors. All sorts of books, sticks, and whatever the one who had the floor could get his hands on were used as object-lessons to express their theories; and finally they got to arguing fiercely as to whether a big grindstone would turn as easily or easier than a small one. I can not remember just what conclusion they arrived at; but at any rate I remember that I was pretty well mixed up. I believe it would be a good idea if, instead of books and sticks, we could have the things themselves right in the convention room, so that we might the better illustrate our ideas. At the Ohio State Convention I took along with me a part of a Van Deusen reversible frame that I might the better describe it. If there had been an extractor at the Ohio State Convention, we could have put it right up on the desk for an object-lesson. I am putting in this last as a sort of parenthesis, for the future—not that I think that supply-dealers should carry their wares with them, to induce sales, but that bee-keepers themselves should take along with them, or cause to be sent, whatever they propose to discuss in detail.

We next listened to an essay from Mr. H. R. Boardman on the subject of

BEE-KEEPING, PAST AND PRESENT.

The president discussed some of the improvements in bee-keeping appliances. He thought that hives and fixtures were about as perfect as we could get them. He did not think the hive, its size or shape, would increase the honey-crop. When he first began bee-keeping he thought that, if he could master the wintering problem, success would be certain. He would then set out apiaries by the score, and start what he would call the Northern Ohio Honey Company. By careful experimenting and observation he finally mastered the wintering problem; but a poor season would come on, and he would be no better off than before. Visions of the "Honey Company" began to wane. For two or three years back he said

he had been *expecting* and *hoping* for a good honey year; but as each year went by and closed without seeing his hopes realized, he was hoping that *next* year would surely be a good season. He did not know why, when formerly he had produced good crops of honey, he should fail now. He attributed a part of the cutting-off of the nectar to using basswood in large quantities for sections. For some reason or other, clover had failed. He had had some experience with alfalfa, and he had had great hopes that something might be realized from this source; and as he closed, it was evident that his paper had something of a discouraging outlook for bee-keepers.

ALFALFA.

This having been mentioned in Mr. Boardman's paper, it was discussed. Some argued that neither alfalfa nor sweet clover would grow in our soil very well; and that the latter, cattle would not eat. Quite a number, however, testified that, under some circumstances, cattle would eat it. On the whole, a hopeful view was taken of the possibilities that might be developed from alfalfa and sweet clover in the way of a new source for nectar. Dr. Miller, in commenting on Mr. Boardman's paper, said that he, like Mr. Boardman, had been waiting for a good season. The third year came, and he secured a good crop—some 12,000 lbs. of comb honey, and he thought our friend Boardman would come across a good season yet, which would very largely make up for the reverses of the three preceding seasons. In fact, a good many testified that clover had, for two or three years past, seemingly failed, but had now begun to yield nectar as a whole, and they hoped that their old-time big crops would come again.

H. F. Moore thought that bee-keeping was no worse than a good many other rural pursuits; they all have their poor and good seasons. Sometimes farmers have three bad seasons.

THE QUESTION-BOX

was then introduced. The first question was, "Shall we use sections filled or partly filled with foundation?" It was answered by a vote. Twenty-five members voted for full sheets and nine for partly filled sheets, and the rest did not vote either way. The next question was, "Shall we advise our neighbors to embark in bee-keeping?" A good many spoke on this question, and many said no. "Is it advisable to shut bees in their hives with wire cloth, in the cellar?" A. I. Root said, "Yes, it can be done." The general consensus of opinion was, that, although it could be done, it was not advisable—at least, not for beginners. Another question was, "Are house-aparies preferable to hives?" J. B. Hains said, "Hives, always." No one demurred at this statement. The next question, "What is the best remedy for bee-stings?" brought out considerable discussion. Dr. Mason recommended oil of cloves, even though it did "come out of a bottle." Some one said, "Grin and bear it." Mr. Eaton called attention to the fact that the evident intent of the question was, what to do in cases of *severe* stinging. Although a strictly temper-

ate man, he recommended whisky, and cited a case where it had undoubtedly saved a life. Mr. Phelps related another instance of what he thought was an equally serious case, but the individual lived through it. Some of the friends got to arguing pretty seriously. Dr. Mason said it is a well-known fact, that, when a person is bitten by a rattlesnake, if he drinks a quantity of whisky it will not produce intoxication; whereas the same person could not take half the quantity without the snake-bite, and yet not be intoxicated, which he thought is an evidence that the liquor counteracts the effects of the poison. A. I. Root then cited the fact that an eminent author, writing on the subject of venomous serpents, for the *Century Magazine*, made the statement that it is very doubtful whether liquor has any effect. The discussion ran pretty high, when it became evident that the feelings of some might be hurt. It is safe to say, however, that every one present was a teetotaler, so far as liquor is concerned.

The next subject under discussion was

MARKETING EXTRACTED HONEY,

by H. F. Moore. He has sold both comb and extracted honey, in the wholesale and retail way, to the extent of many tons, and has probably had as much experience as any other man in the business. He first took nice samples of honey around to private houses, and in a gentlemanly way asked if he might have the privilege of bringing them around, at another day, a bottle or two of honey, naming the price. Usually he would secure an order. Politeness and courtesy have a good deal to do in being able to dispose of honey in this way. If customers did not seem disposed to purchase, he did not urge them. Latterly he has sold direct to grocerymen, putting the honey up in Muth jars, and covering the cork with a nice piece of tinfoil. Mr. Moore is working up a reputation for his honey, and grocerymen recognize that he always handles nice honey, put up in nice packages. He has only recently begun to sell to grocerymen, and has sold already something over 100 gross of Muth jars of honey. A reporter for a Cleveland daily paper got it down something over 100 bottles, and commented on it as a fact that it was a very large sale. I hope I have got it nearer right. Unscraped sections, such as are covered with propolis, are unsalable, said Mr. Moore. In regard to "extracted" honey, he did not like the name. He prefers the word "clear" honey, the same as the Germans use. He had experienced difficulties on all sides from the Wiley falsehood. In many cases he had hard work in convincing them that his honey was honest honey.

SHIPPING HONEY

was another topic for discussion. Dr. Miller was asked how he shipped that 12,000 lbs. of honey which he sold for cash to an eastern firm. To make the combs of honey more secure, he fastened a small starter at the top and bottom of the sections. This insured the attachment of the comb to the top and bottom, and also to the sides. In

packing his honey in double-tier 24-lb. cases, using a thin board between each tier, the cases were piled one above another, in such a way as not to fall down. The sections, as a matter of course, were placed parallel with the rails. Mr. Moore said he had received small shipments of comb honey badly broken down. The tiers of cases were piled one on top of another to the height of an ordinary man, and were piled by themselves. When the car was bumped into, the pile toppled over, and down went the honey. Mr. Moore urged another point, and that was: Do not put poor sections in the crate with good honey. You will lose more than you gain.

We next listened to well-written essay on the subject of bee-forage, by S. F. Newman. I wish to say right here, that this essay was one of the most scholarly that was ever prepared and read at a bee-convention. Mr. Newman introduced the subject by a very neat prelude about the bee-keeping of today and that of Virgil's time, and said we had not made so *very much* improvement since then; in proof of which he cited some very beautiful translations from Virgil—translations that were evidently his own. I have read Virgil and one or two more of the Latin poets, and I think I can appreciate somewhat when I hear a good translation. If one of these had been rendered in the class-room, the professor would, I am sure, have given it a very "tall" compliment. Coming more directly into the subject of bee-forage, Mr. Newman cited an instance where his bees at home were doing almost nothing, while those a few miles out were working very heavily on peavine clover. From the latter apiary he produced a large crop of honey, and had it on sale in the groceries. I have seen and tasted samples of it, and know it was fine, and that the crop was large. Mr. Newman recommended that, when a basswood is cut down, we set out another. He would induce farmers to set out mammoth peavine clover and buckwheat, and sweet clover along the creeks. It can be made to take the place of ragweed, if we think so. Mr. Newman, in his essay, made allusion to Virgil's method of watering bees. This brought out the fact that one of the members—I think it was Dr. Bessie—soaks rotten wood in water, and places it accessible to bees. On the matter of alsike clover, all were not agreed as to its value to farmers. Mr. Eaton said that the farmers did not like it for stock, although others testified that their farmers do. While I am about it, I wish to say that that ingenious little story about artificial eggs that would hatch chickens that had no feathers, originated with Mr. S. F. Newman. You will remember that it was copied through the press, north and south. His object was to counteract, by a piece of pleasantry, the manufactured-comb-honey yarn by bringing up another parallel case, so obviously ridiculous, preposterous, and impossible, the gullible public would begin to doubt whether artificial eggs or comb honey were any thing more than a myth; and the story had a wonderful effect, although there are some old fogies who will

continually persist in thinking that artificial eggs have been made, so perfect that chickens would hatch from them without feathers.

A good deal was said for and against sweet clover.

As to alsike, some said their farmers would not use it again, and others testified to the contrary. Come to sift the matter down, it seemed that a good deal depended upon the soil.

Along about this stage of the proceedings, your humble servant introduced the subject of thick top-bars. It will be unnecessary to repeat the same here, as there has already been considerable said in regard to the matter in these columns. In my paper I alluded to the fact that honey-boards might possibly be displaced entirely by heavy top-bars; and I was astonished to find how many of the bee-keepers of Ohio have never used honey-boards, and would not use them. A vote was then taken, and I think only about 20 per cent had used honey-boards, the rest either using heavier top-bars or else putting up with burr-comb attachments.

OUT APIARIES.

This subject was discussed by Mr. J. B. Hains, of Bedford, O. He did not think it necessary to have an assistant to keep in attendance. He ran for extracted honey; and what little swarming there was, families were rewarded for the hiving by gifts of honey at various times. No attention was given to the bees until the swarming-time. Then he goes with the wagon and takes along as many empty combs as he can carry back in a load of others filled. While in the apiary the filled combs are taken out and replaced by the empty ones. He returns home and does all his extracting where he has conveniences. If there is any robbing to be done, it will take place under his supervision, and not in an out-apiary where members of the farmer's family might receive a good deal of annoyance.

To reduce swarming to a minimum he prevents the rearing of drone brood by every possible means. He gives them plenty of shade and ample entrance.

CELLAR WINTERING.

This was discussed by Frank A. Eaton. After having tried the outdoor and indoor methods he prefers the latter, because it gives him a chance to use the best and the cheapest hives—the single-walled ones. A good many about him were unsuccessful in wintering. When he came to ascertain the cause he found the cellar was too light, and there were a good many apples and potatoes in the cellar, besides decaying vegetables. A cellar should be dark, and should have nothing but the bees, and, if practicable, they should be shut off by themselves. A vote was taken, and it was found that 17 wintered indoors and 32 outdoors.

The Question-Box was here introduced. "What is the best way to get propolis off the hands?" Some one suggested alcohol; others benzine. "Which are better—tight or loose bottom-boards?" Dr. Miller prompt-

ly responded "Yes." Nobody disagreed. "Which are better—Italians or hybrids?" Frank A. Eaton thought that hybrids are better than Italians, because they are easier to keep pure.

After a little unfinished business the convention adjourned to meet at Toledo, Dr. Mason being chosen president, and Miss Bennett being reelected secretary and treasurer.

USING INTOXICATING LIQUORS FOR RELIEF

When Severely Stung by Bees or Bitten by Serpents.

IS THERE A POSSIBILITY OF A MISTAKE IN THE MATTER?

I SUPPOSE that most of you have heard the statement that has been handed down from generation to generation in regard to the use of whisky and other intoxicants in case of snake-bites, and also as a means of saving life when the sting of a bee or many bees produces dangerous symptoms. You are aware that I have many times expressed a doubt in regard to the matter. In the *Century* for August, 1889, is an article from Mr. S. Weir Mitchell, a man who has devoted a large part of his life to the investigation and study of poisonous serpents. One can hardly help deciding, after carefully reading the article, that the writer is as well prepared, or perhaps better, to give us the truth, than any other man living. I will make one or two extracts. Here is the first:

The first effect of venom is to lessen suddenly the pressure under which the blood is kept while in the vessels. Death from this cause must be rare, as it is active for so short a time. Any alcoholic stimulus would at this period be useful; but, despite the popular creed, it is now pretty sure that many men have been killed by the alcohol given to relieve them from the effects of snake-bite; and it is a matter of record, that men dead drunk with whisky, and then bitten, have died of the bite. For the consequences to the blood and to the nerve-centers which follow an injection of venom, there is, so far as I am aware, no antidote; but as to this I do not at all despair, and see clearly that our way to find relief is not by stupid trials of this sort and that, but by competently learning what we have to do. Moreover, we are in a position at present to say what not to do, and there is a large measure of gain in being able to dismiss to the limbo of the useless a host of so-called antidotes.

From the above we gather that people have been killed by mistaken kindness; that is, a tremendous dose of whisky killed the patient where the snake-bite alone would probably have done no serious harm. This very thing has occurred to me before. Please remember, dear friends, how many years it was the accepted custom to bleed a man for every ill that flesh is heir to. If he was suffering from lack of blood, they continued to bleed him all the same; and when the poor fellow died, the decision was, that even *bleeding* did not save him. The second extract is as follows:

If the dose of venom be large, and the distance from help great, except the knife or cautery little is to be done that is of value. But it is well to bear in mind, that in this country a bite in the extremities rarely causes death.

Please notice from the above, that the serpent-bites in this country rarely produce

death. Heavy doses of whisky do, however, often produce death. I myself witnessed the death of a little child who reached and took a teacup *partly filled* with common whisky, where it was carelessly left on a stand or table. Now, then, suppose a child has been stung so severely that there is apprehension that death may ensue: shall we give whisky enough to kill a *well* child, in our attempts to afford relief? You know it is popularly claimed, that, when one is bitten by a serpent, or stung severely by bees, he will bear enormous doses of whisky without even producing intoxication. Now, this may be true—at least, a good many physicians believe it to be true. But, dear friends, is it not possible that it is just as true, and no more so, than was the old doctrine of blood-letting, when any thing ailed the patient?

On our way to Mammoth Cave, the smallest and weakest horse in the lot began to play out, I decided, from exhaustion, and nothing else. The colored stage-driver borrowed a knife from Ernest, and cut and lacerated the poor animal's mouth, till its blood bespattered the muddy road; then he pronounced the cure complete, and drove on. During the operation the horse had rested enough so as to get breath, and therefore started up with temporary improvement. The darkey declared that the *blood-letting* gave the horse new strength. Now, I do not mean to be stubborn or contrary; but, dear friends, please let us be sure we are not following in the footsteps of the darkey; and, above all, let us remember that a *single dose* of whisky may consign almost any human being to a *drunkard's* grave, in spite of all that temperance workers and Christian exhorters can do to save him.

The fact that the *Youth's Companion* has, in a recent number, strongly advocated the use of whisky in tremendous doses, in case of snake-bites, does not change my opinion in regard to the matter in the least. I think the writer has simply followed the popular opinion. Although he tells us considerable in regard to snake-bites, he has not given the subject such thorough and complete investigation, by any manner of means, as has Mr. Mitchell in the *Century*.

PRICE LISTS RECEIVED.

We have just printed circulars for the following parties:
 Levering Brothers, Wlota, Cass Co., Ia.
 W. S. Ponder, Indianapolis, Ind.
 J. B. Kline, Topeka, Kan.
 S. W. Pike, St. Charles, Ill. Seeds, vegetables, and plants.
 J. P. Connell, Hillsboro, Texas.
 F. T. Hall, Lochiel, Wis.
 J. C. Horton & Bro., Muskegon, Mich.
 J. A. Thornton, Lima, Ill.
 Other parties have sent us their circulars as follows:
 J. B. McCormick, Fredericksburg, O.
 J. T. Wilson, Little Hickman, Ky.
 F. A. Snell, Milledgeville, Ill.
 B. Davidson, Uxbridge, Ont.
 J. W. K. Shaw & Co., Loreauville, La.
 J. W. Buchanan & Bro., Eldora, Ia.
 C. M. Dixon, Parrish, Ill.

CONVENTION NOTICES.

The spring meeting of the Missouri State Bee-keepers' Association will be held at Marshall, Saline Co., Mo., on Wednesday and Thursday, April 16 and 17, 1890, in the county court-room. Reduced rates at hotel, for bee-keepers, have been secured. A cordial invitation is extended to bee-keepers everywhere to attend, and especially those of Missouri. Essays from prominent men are expected. J. W. Rouse, Sec'y.
 Santa Fe, Mo.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 156 — *Is a double-walled hive, with a dead-air space, as good for wintering as one of the same kind with this space filled with chaff, providing that a chaff cushion or other absorbent be used above the brood-frames? Have you had any practical tests to lead you in deciding one way or the other?*

No. I learned this from others.

New York. C.

P. H. ELWOOD.

Yes, a dead-air space is the best of non-conductors I have.

Illinois.

MRS. L. HARRISON.

1. No. 2. No; and I don't need any to know that much.

Ohio. N. W.

A. B. MASON.

We prefer a single-walled hive, yet we have chaff and double-walled hives in use.

Illinois. N. W.

DADANT & SON.

I prefer to use chaff, for the reason that I have never succeeded in getting a "dead-air" space.

Wisconsin. S. W.

GEO. GRIMM.

I should say better, provided you have the dead-air space.

Ohio. N. W.

H. R. BOARDMAN.

I have tried both. I should prefer the chaff. Theory and practice both support this opinion.

Michigan. C.

A. J. COOK.

I never experimented with double-walled hives; but to guess at it, I think I should rather risk the chaff.

Wisconsin. S. W.

S. I. FREEBORN.

I use straw, and prefer it to either a dead-air space or chaff. As each separate straw contains a dead air-space, I have hundreds of dead-air spaces instead of one.

New York. C.

G. M. DOOLITTLE.

I've had no experience, but I suspect an actual dead-air space is better than chaff. But in actual practice I doubt if walls are close enough to be air-tight, so I should prefer the chaff.

Illinois. N.

C. C. MILLER.

I am not in favor of a fixed double-walled hive of any kind. Chaff packing that can be removed is much preferable. I have tested this matter very thoroughly.

Connecticut. S. W.

L. C. ROOT.

I have had both kinds in my roof apiary for the last 25 years, and still have some of both. There is, perhaps, no difference between them. But I am positive in stating that my strongest colony in spring was never in a chaff hive.

Ohio. S. W.

C. F. MUTH.

I never saw a hive with a *dead-air* space, neither do I believe anybody else ever did. Since it is necessary—in order to have a dead-air space—that every joint be perfectly air tight, this would require a glue joint at every joint. We have in an empty, well-corked, and sealed bottle, a dead-air space; and

to get it in a hive it must be as perfect as in the corked bottle; hence I would consider it safer to fill the space with chaff, as the chaff itself assists in forming the dead-air space, or, in other words, many little dead-air spaces.

Vermont. N. W.

A. E. MANUM.

I think not. Coarse packing-material in double-walled hives gives much less protection than does fine material; and as coarse material gives conditions nearer like those of a dead-air space than does fine, I reason that a dead-air space would be still less satisfactory. I speak from a large experience with chaff hives.

Cuba.

O. O. POPPLETON.

I have had no practical experience in dead-air spaces. A dead-air space might be effective if it were really a dead-air space; and can you make a really effective dead-air space in an ordinary wooden hive exposed to all conditions of the atmosphere? We doubt it.

New York. E.

RAMBLER.

We have three or four hives that happened to get into the field without having the space filled with chaff. They have been in use three or four years. I don't know but they are just as good as those that are stuffed with chaff. But we prefer to put in the chaff. There are a great many people living in cold houses, and don't freeze to death; but that doesn't prove that it is better to live in a cold house.

Wisconsin. S. W.

E. FRANCE.

I am a charitable individual, but I sometimes feel tempted to "say things" about the brethren that keep talking about dead-air space in a hive. I should think it derogatory to my own wits if I should say that I had experimented with it much. Dead-air space in a hive is impracticable—summer suns are too hot, and cracks form too easily. If you have a double wall, pack it with something, of course. To be sure, a few boards set up around to break the force of a winter gale will help *some*; but what would be thought of the sanity of the individual who would prefer to crouch behind a few boards when he might just as well be in a house?

Ohio. N. W.

E. E. HASTY.

Yes, sir, if your air space is absolutely tight. In our opinion, all chaff does is to perfect the work of the hive-maker. The chaff that would fill the walls of a hive weighs almost nothing, leaving the dead air as the main filling, after all; but it chinks up little cracks so the space is a dead-air space, not filled with circulating atmospheric air. I prefer a more solid wall, however, made thicker, and filled with some more solid filling, and painted dark red, because the dark color has no tendency to radiate away the heat of the bees in stormy, cloudy weather; and when the sun shines, which is more of the time than many think, it furnishes heat which the bees get, and thus aids them in keeping up the necessary temperature. Yes, I have had lots of practical experience in this line.

Michigan. S. W.

JAMES HEDDON.

If a space of perfectly dead air could be secured it would be theoretically as good a non-conductor as we could secure by any packing. Practically this is never secured, for the reason that, even if the air space is perfectly inclosed, as long as one side is warmer than the other, currents of air will circulate, carrying heat to the other side. Packing

of any kind breaks up these currents of air; and the more they are prevented, the more perfect the non-conducting power. Try the experiment with some of your honey-pails. Fill two pint pails with hot water. Put each of them, with a thermometer, into a two-quart pail, and these into eight-quart pails. In one, support the smaller pails by blocks, so as to form dead-air spaces, which may be made almost perfect by tying paper tightly over the tops. In the other, pack the space between the larger pails with chaff, shavings, or, better, with wool or feathers. Open at intervals, and compare the thermometers.

Illinois. N. C.

J. A. GREEN.

A year or so ago, when we were renovating our chaff hives by boiling them, we discovered that two of them had never been packed with chaff in the sides. Both of these hives had wintered bees every year just as successfully as the other hives having chaff packed in the side walls. The question that arose in my mind was, "Wouldn't all the rest of the hives have wintered the bees just as well if the side walls had not been packed in chaff?" If such is the case, it would have saved a good deal of expense; and to satisfy my curiosity I propounded the above question. It will be remembered that W. T. Falconer has sent out for years his Falcon chaff hives, the side walls of which, if I am correct, are simply dead-air spaced, without chaff packing. I feel pretty well satisfied, however, that a chaff cushion above the brood-nest is a good thing, whether the chaff in the side walls is necessary or not.

ERNEST.

OUR HOMES.

Nevertheless, I have somewhat against thee, because thou hast left thy first love.—REV. 2:4.

As it is out of the question to have a nap on *Sunday*, just before dinner, on account of church services, I always take my nap just before going to church, say about ten o'clock or a little before; and I usually wake up about a quarter past ten, and then I am ready to go to church, bright, fresh, and vigorous, and no danger of getting drowsy. Well, the *Sunday* about which I propose to speak to-day was communion *Sunday*. I did not think of it, however, until I came to take my place in church, and saw the table with its white spread. In a few moments more my attention was drawn from worldly matters by the reading of our good pastor. It was from the second chapter of the book of Revelation. He read as follows:

I know thy works and thy labor and thy patience, and how thou canst not bear them which are evil; . . . and hast borne, and hast patience, and for my names's sake hast labored, and hast not fainted.

The very first words took a strong hold of me. It seemed as if the Savior had directed my good friend who was in the pulpit to read these words for my special benefit. They were exactly what I needed. Sometimes when I am sorely discouraged and cast down I repeat to myself the little text,

"Blessed are they which do hunger and thirst after righteousness;" and it gives me comfort; for, no matter how bad I am, I believe I really and truly love righteousness. I am a diligent worker also; and in some directions I believe I have a great amount of patience; and I think, too, that I oftentimes bear a good deal and have patience for Christ's sake. The concluding words, "Hast labored and hast not fainted," gave me comfort; but at the same time there was a foreboding in them that something else was coming. I knew that, on this special morning, I needed rebuke and reproof; and I just began to realize that my mind was full of a great lot of worldly matters that had no business there, especially on this *communion Sunday*; therefore when the pastor went on and read the next verse, which I have selected as my text, it came upon me in such a way as almost to startle me:

Nevertheless, I have somewhat against thee, because thou hast left thy first love.

Then he read the fifth verse:

Remember, therefore, from whence thou art fallen, and repent, and do the first works; or else I will come unto thee quickly, and will remove thy candlestick out of its place, except thou repent.

I hope, dear readers, that you will get your Bibles and read the whole of this second chapter of Revelation. I wish now to digress a little to tell you just why these words took such a hold of me. The first verse of the chapter says, "Unto the angel of the church of Ephesus write;" and it was John who was directed to write these words. Our pastor explained to us that the word "angel" might mean minister, so that John was simply to direct the pastor of this church at Ephesus to speak to his people in the way I have quoted. Our pastor was speaking these words to his people, and they were just the ones I needed. Had he looked me full in the face, and directed his whole talk to me, it seemed as if it would have been most exceedingly appropriate for my case.

Please let us go back to *Our Homes* for Feb. 15, where I spoke of something that had clouded my spiritual state. I told you, also, of an instantaneous and wonderful deliverance. A week after that deliverance, I also wrote that, as yet, no trace of the cloud had darkened my spiritual vision. There may be some among my readers who do not care to follow me in this matter of struggles against temptation. There may be some who think it childish. If so, I hope these friends will have charity while they skip past what I have to say this morning, for I feel it to be my duty to go on, as I know from the letters I receive that there are *others* who are fighting manfully, and fighting *inch by inch* against temptation and Satan. I know, too, there are at least some who have become almost discouraged, because they have fallen *again and again*. I think there are some, also, who, after having been redeemed by the blood of Christ, have, in the language of our text, *left their first love*, and strayed away into the bondage of sin, and into Satan's snares. To *such* I want to speak to-day, because I be-

lieve my experience may be helpful to you. Let me illustrate what I have in mind by some *familiar example* in the way of fighting temptation.

Thirty years ago I was in the habit of taking a glass of beer now and then, and perhaps I might as well say that I had become quite fond of lager beer. Now, although it is certainly 25 years since I have tasted a drop, the old appetite comes back yet with astonishing power, once in a while. When I hear my German friends talk about their social glass of lager, a great many times I have said in my heart, "Oh, how I do wish it were not wicked to tell them that I love their favorite beverage too, and to ask to be one among them, and drink with them!" In some respects I am ashamed of this confession, dear friends, but in others I am not. I love to get acquainted with the German people, and I want to bring them to the Savior that I have found, and I am *glad* to join in every thing that is innocent and harmless, in the line that Paul suggests when he says, "I am made all things to all men, that I might by all means save some." Well, now I want to tell you that, when I am alone in our great cities, Satan often whispers to me, "Why shouldn't you have a glass of beer now? What harm would it do? There is not a soul here that knows you, and no one need know a thing about it. There is *certainly* no danger that you would ever drink more than is good for you." And while he is whispering these suggestions I look into the saloons with their attractive and inviting placards. At just such times I have said to myself, "If there were *nothing wrong* about it I would give a *whole dollar* for just one single glass of lager." Now, please do not understand that I have ever thought of *doing* such a thing. It would be wrong for me to waste a whole dollar in the purchase of *any thing* in the way of drink, *as a beverage*, that the world has ever furnished. The money that I call my own is not mine to use in any such foolish way. I know there are people who pay several dollars for a bottle of wine; but I should be ill at ease with such a class. When such suggestions come (in some way they always seem to come most when I am in an unknown city, and among entire strangers) I have always, sooner or later, said, "Get thee behind me, Satan;" but my temperament is somewhat imaginative, as you may know, and I am afraid I do not rebuke Satan *soon* enough. It is this same old temptation that I spoke of in regard to the machinery of the universe. The study of the machinery employed by the *evil one*, somehow or other has something fascinating about it to me. Now in regard to the danger that has been threatening me: He who has money and property intrusted to his care usually meets temptations that other people do not have to meet. While in California I saw some beautiful gardens belonging to a man of wealth, and people would say to me, "Mr. — paid \$10,000 for that five acres of fruit, just as it stands now." David C. Cook gave \$60,000 for his California ranch; and now he is investing ever so many thousand more to make it a

little paradise here on earth. In another case an ideal orange-grove in full bearing presented such a beautiful sight that a man of capital paid \$5000 for it, cash down, just that he might be able to say that such a thing of beauty was his own. Our business is getting to be, as you know, one of considerable magnitude. Single purchases of more than a thousand dollars are now comparatively common. Sometimes such a purchase is made by the demands of the business, when I hardly know any thing about it until I see the bill. It is all right and proper. The boys are beginning to exercise so much judgment and wisdom in managing these matters that I do not feel as anxious now as I used to in regard to them. In order to make our extractors all of one sheet of tin we were obliged to get our tin imported from the old country, and I had almost forgotten about it until the bill came through the mails, for over one thousand dollars. John had made the purchase, and had made it wisely. Our new printing-press, that is making us all happy, was purchased entirely by Ernest. I was not even introduced to the agent until the purchase was completed. I was busily occupied at the time, and I told Ernest that, as he had studied the matter well, and had it all in hand, he should go ahead and make the purchase. Although the press was valued at \$2500, we have every reason to think that he made a careful investment. Now, in one sense this property is ours to do what we please with it; in another, *it is not*. My way of putting it would be this: It belongs to *Christ Jesus*, the Lord and Master. We are stewards to hold and use it, and to invest it as best we can for *his honor and glory*. I think, dear friends, you all pretty nearly agree with me, only perhaps you might put it in another way, say like this: You, my friends and patrons, have intrusted me with your money. You have desired me to publish a good bee-journal with a part of it; with the other part you wish me to furnish implements and supplies for bee culture, and to look after the general good of our industry. You do not wish me to use the money that I thus accumulate, for gambling or even for speculating. I think that most of you would feel a little hurt, and may be you would feel like finding fault, if I should pay \$10,000 for an orange-orchard in California or Florida. Such an investment would not do *you* any good, and might do *me* much harm as I am at present situated. It would not be in harmony with my profession; therefore my duty to myself and my duty to my fellow-men demands that I resist such temptations. In this light it would be foolish and wrong for me to pay a dollar for a glass of lager beer, even if there were no intemperance about it. But the worst obstacle in the way of the latter is the guilty conscience I should have after having done such a foolish thing. Suppose I should preach temperance and Christ Jesus while *at home*, and then when I am off alone in the night in some great city, yield to that old appetite, thinking no one would know it.

For two or three weeks after my deliverance, as I told you in my Home Paper of

February 15, no glimpse of that old temptation came near. As the days passed I began gradually to forget about it, however; and when I became so much absorbed in the great crowd of business that I began to forget or neglect *daily prayer alone by myself*, before I knew it this old shadow began to creep slowly back; and it came in the line, too, with what I have said in regard to giving a dollar for a glass of beer. Satan approached me one day, almost unawares, and began something in this way: "Mr. Root, suppose you could, by money, purchase a *fair and clear title* to this 'cloud land' that has been disturbing you."

What I should have done at this point was to have said, "Get thee behind me, Satan. My business is here *on earth*, and not up in the clouds. I have nothing to do with investments in cloud land. Get thee hence!"

That was not what I did, however. The subject had never presented itself in just that light before, and I fell to thinking of the orange-groves and the beautiful ranches that some of the rich men purchased in California, and then, just for the fun of it, I began speculating as to just what amount I would be willing to pay, *provided* I could have just what I fancied, and in a way that would wrong no one. Satan was keen enough to make the most of his advantage, and he went on, in a very smooth and plausible way, "You would probably give a thousand dollars, without any hesitation, would you not, friend Root? Well, now, would you not give *five thousand dollars*?" And then he began explaining how it might all be managed without anything derogatory to the character of the Christian. I do not know how many minutes I spent in building air castles in the clouds, in just this way. Perhaps it was not more than a second or two—no matter. The brief parley did me harm. Old temptations came trooping back in rainbow colors, and for a brief moment I was ready to—to—what? Sell my "birthright" for a "mess of pottage"? No, thank God, not quite; for the old prayer, "Lord, help," came to my aid. But I felt at once that my bright spiritual vision was dimmed, stained, and soiled by sin in *contemplation*. The brief glimpse that Satan held up haunted me. I once met in our county jail a man who had set his store on fire in order to get the insurance. Said he, "Mr. Root, I first began planning as to how the thing might be done, without the remotest idea in the world of *doing* such a thing. I kept saying to myself all along, 'I would not be guilty of such a thing for worlds;' but yet there seemed to be a mysterious fascination in speculating upon and going over the ground, and planning on how it might be done so as to escape detection." The end was, that *he set the building on fire*. Please believe me, friends, when I tell you that a great part of the crime that curses our land, and sends human souls into the bottomless pit, starts in just that way. I turned away from Satan, thinking that I had not been harmed, but I had. A fence, when it has been once broken down and repaired, is rarely as good as it was before;

but I did not think very much about it until that communion Sunday. Now, friends, I have been emphatic and vehement in urging you to *attend church*. I have urged again and again the importance of being united with some band of Christian people. Most of you have a good deal of faith in your old friend A. I. Root; but I tell you, friends, it would not be a *safe* thing for *me* to stay away from church. When those searching words from God's holy book took hold of me, at first it seemed as if there was not any help for it. The best I could do would be to keep my mind on the sermon as well as I could, and go home without any spiritual blessing. I have attended church, and remained through the service in a dead, dull sort of way, without very much heart in it, and, as a result, went home in a low state spiritually, and may be went through the week with a dead kind of religion that was more a form than any thing with life or heart in it. On this particular morning I felt tired of the unceasing conflict. Then the words of the text came to me again—"Nevertheless, I have somewhat against thee" Why? "*Because thou hast left thy first love.*"

When the above struck me so forcibly, and kept ringing in my ears for some time afterward, I had no thought that the pastor was going to choose it for his text. He read the whole chapter, or the greater part of it, but I got hold of that one verse, or, rather, it got hold of me; and when he announced it as his text I was startled, and it seemed again as though there were a providence in it. It seemed as if God had put it into his heart to read this chapter, and to preach from this text for my special benefit.

You will notice that, while the words are a reproof and a rebuke, they are exceedingly kind. The dear Savior seemed to have in mind just what I had done for his cause in times past; and he seemed to *grieve*, almost, as it were, because I had neglected him (my first love) and turned away for the things that Satan had produced and held up. In my earlier experience, one of my favorite prayers when tempted was, "O Lord, may *thine image* take the place of these things that would lead me astray and do me harm. Help me to love *righteousness* and *purity*; and may thoughts of *thee* crowd out and *keep away* all that is sinful and unholy." It seemed that morning as if Satan stood beside me. It seemed as if he plead with me as he did with the Savior himself when he said, "All this power will I give thee, and the glory of them." With the thoughts of the text, and the earnest words of the pastor, came visions of reservoirs, water-pipes for irrigation, beautiful gardens; and a host of other things of a worldly character seemed crowding forward and insisting on a place in my thoughts. Then the communion-table near by! how could I partake in my present frame of mind? I knew I was *bad* and *wicked*; but notwithstanding the victories of the past, some way I felt discouraged and helpless. Satan whispered again, "What is the use of praying about being good when you know you *do not want* to be good?" The matter was tangled up,

and I could not understand it; but I could fall back on my old brief prayer that had been breathed so many times before—"Lord, help!" With bowed head, I prayed as I have seldom prayed before, almost during that whole sermon. At one time Christ Jesus seemed to be gaining ground; and then worldly matters (with that "cloud land," temptation, always surmounting the rest) seemed to get between me and my old and tried Redeemer. Before the sermon ended, however, Satan, with all his machinery, began to retreat; and even before victory had come, came the bright faith that it *would* come if I kept on praying, and pleading the promises. Before communion the conflict was ended, and peace reigned in my soul. I was *anchored*, and at rest.

Then the devil leaveth him, and, behold, angels came and ministered unto him.—MATT. 4:11.

How about the cloud-land investment, for which, during the week, I had felt at one time almost willing to risk five thousand dollars? May the Lord be praised, I did not want it at all. I would not give even one copper for it, even had it possessed all the advantages Satan had pictured and held out to me. I could say honestly and truly, as a little child might say, "No, thank you, I have no use for any such property at all. I am happy and contented without it."

Some of you may say, "What is the use of making one's self miserable all this time by being deprived of this, that, and the other? If I wanted a glass of lager as badly as you wanted it, I would drink it and done with it; and if I wanted to invest five thousand dollars in something I took a notion to, if I had the money, I would make the purchase. If people didn't like it, I would tell them it was *my business and not theirs*." Well, friends, there are people who do just that way. There are people, too, who forget their religion; forget the debt they owe their fellow-men, and, under temptation, set fire to buildings, or run off with other people's money that is intrusted to their care. There are people who sell themselves as Esau did, simply because Satan whispers it is worth the price. On the other hand, in the Bible there are promises to those who resist evil and cling to the good. Here is one of them:

He that overcometh, the same shall be clothed in white raiment; and I will not blot out his name out of the book of life, but I will confess his name before my Father, and before his angels.

And here is another:

And he that overcometh and keepeth my works unto the end, to him I will give power over the nations.

Another still:

To him that overcometh will I grant to sit with me in my throne, even as I also overcame, and am set down with my Father in his throne.

When I first united with Christian people I was a good deal prejudiced against forms, ceremonies, ordinances, etc. Communion was a sore trouble to me. It seemed to me as if it were going through a formal ceremony that had no particular significance in it. As years passed, however, I began to comprehend that it was a sacred duty—a sort of reminder—that in one sense it was

to the Christian somewhat as the Fourth of July is to the descendants of the Revolutionary heroes. Slowly I began to feel that it was a serious and sacred matter to commune with Christians, and I began to be a little afraid of the communion season—or, rather, if you choose, afraid of *myself* when communion Sunday came around. Of late, whenever I see the table spread, it makes me think of David's little prayer: "Create in me a clean heart, O God, and renew a right spirit within me." I have never been absent a communion day—that is, when I am at home. I should be *afraid* to be absent. Yes, I should be afraid to stay away from church if it were a possible thing for me to get there. I presume you know why. I am afraid I should backslide or slip back. I remember vividly what the old life was without a Redeemer, and I hope that, whatever shall happen through life, like Christian in the Pilgrim's Progress (in the Slough of Despond) I may always be found struggling toward the *further shore*.

The moral to this experience seems to be this: "Let him that thinketh he standeth, take heed lest he fall;" and let him that recognizes that he is a sinful creature, and prone to wander (whether it be in the line of tobacco, drink, profanity, or sin in any form), be *regular* in attendance at church services. Let him be careful how he neglects daily prayer alone by himself. I have felt all during this week as if I wanted to *tell* of my deliverance. The fragments of an old hymn that I learned at my mother's knee in childhood come floating back through the forty years or more since I first heard them. I can not find the hymn in the books now, but I think it commences something like this:

Come, saints and sinners, hear me tell
The wonders of Immanuel;
I'll point to his redeeming blood,
And say, "Behold the Lamb of God."

Another verse starts out:

I wonder why old saints don't sing,
And praise the Lord upon the wing,
And make the heavenly arches ring
With loud hosannas to our King.

Another one, perhaps the last of all, contains these two lines:

Then will I tell to all around
What a dear Savior I have found.

The last thought is the one I want to leave with you in closing:

If you have no temptations to meet; if it is easy for you to love your neighbor and to fulfill the requirements of the gospel, you perhaps do not care especially for this Home Paper; but if you have difficulties to meet; if you have trials and temptations to fight against, then, my dear friends, let me tell you that there is no safety outside of the Rock Christ Jesus. Do not, I beg of you, think that following Christ is going to debar you from any true enjoyment that this world has to offer. Old age has no terrors for him who is anchored to the Rock Christ Jesus. Although I am now past fifty, I am sure that, *never in my life*—not even in my boyhood—have I had the keen enjoyment and relish in every thing going on round about me that I have now. I love business and I

love progress; I love education; I love mechanics and machinery; I love gardens and greenhouses; I love churches and I love Sunday-schools; I love Christian people as I never loved them before; and I love *you*, dear friends, whom God in his infinite mercy has seen fit to permit me to talk to, and to cheer and to encourage with these lines; and I want to see you hold fast to the faith, and not faint. When our pastor read the words, "Lest I come unto thee quickly and *remove thy candlestick out of its place*, except thou repent," it occurred to me at once that, if I should go on stepping back, I should lose my place among Christian people; I should lose my privilege to speak in these Home Papers; faith in Jesus Christ would be gone, and then I should have what Satan has to offer—that and nothing else, and he is always offering something that is *not his to give*. "When he speaketh a lie, he speaketh of his own: for he is a liar, and the father of it."

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

QUITTING ALL KINDS OF "MEANNESS."

Will you allow me thank you for the great blessing which has come to me through your writings against the use of tobacco? I have been chewing and smoking for at least 20 years. To quit seemed too much for me, although I had been wanting to do so for quite a while, and had made one or two attempts, but could not get the consent of my mind fully, until at last I was convinced by you that a man *can* quit his "meanness," and, as Sam Jones puts it, "*must* quit his meanness;" and when I understood it I found it easy indeed to stop short; and I have not smoked or chewed one crumb of tobacco for about 12 weeks, and am hearty and healthy, weighing more than I ever did. Oh how many people there are, who want to be called "nice folks," who are using the cursed stuff!

I was under its power for so long I thought I could not let it go; but it was all knocked out of me by one stroke; and when I am tempted I am now able to say, "No, thank you." Bro. R., don't take back what you have said against tobacco; and make *no* apology to any one using it; for, indeed, it is a great sin; and shall we be afraid to rebuke it? I shall not be afraid, for I know the evils thereof. I have been reproving our two ministers here, who are users of tobacco. I talked to them kindly, in strong language, saying that the chewing and smoking of tobacco is a very mean, dirty, sinful habit. Bro. C. said it was recommended to him by a physician thirty years ago, and he had used it ever since. He knew it was a very dirty practice, yet

could not see that it was a *sin* to use it, and did not think it was. Said I, "Very well, my good brother. I think you have not given the matter much thought. Let us look at it for a moment. We adults look to you for instruction by your practice as well as precept. Now, for our children what is the example you set? I tell my four little children (oldest ten), that I quit smoking (as I never chewed before *them*) because it was a sin, and that no good man or woman should use tobacco. Now, they think as we do—that the *preacher* is a good man, as he prays for them in our home. Surely it can't be that *he* chews and smokes before them? Yes, he *does*, and he ought to 'quit his meanness.'"

A French chemist claims that he has traced the cause of many cases of poisoning from nicotine, absorbed from tobacco smoke in the *meat-market*; and he avers that no amount of cooking will destroy the poison. So we are not only killing ourselves by its use, but are liable to kill others as well.

T. J. ANDERSON.

Joseph's Mills, W. Va., Feb. 5, 1890.

Friend A., I am exceedingly glad to know that you have been delivered from the bondage of the tobacco habit; but, dear brother, please let us be careful in our criticisms of others who have not seen fit to do as we have done. I am glad you did reconvert with your minister; but let us carefully and prayerfully prepare ourselves for such a task, and be sure that we choose such words as will do the most good, and not do harm. There is only a very narrow line that separates between saying just enough and saying just a little too much. When we each and all commence in real earnest to "quit our meanness," then shall a great reform be ushered in.

A DAUGHTER TAKES A PLEDGE FOR HER FATHER.

My father's name is Alexander Carruthers. He has stopped the use of tobacco in all forms, for good. He has stopped from what he has read in GLEANINGS. Please send the price of your smoker; and if he ever uses tobacco he will pay you.

SUSIE CARRUTHERS.

Osaca, Ont., Can., Jan. 27, 1890.

May God bless you, Susie, for getting your father to take the pledge and for sending us his name. Most gladly do we send the smoker, and may more of the daughters of our land take courage from what you have done, and go and do likewise.

TOBACCO, AND ITS EFFECT ON THE MIND.

I have two boys, almost young men, who don't use tobacco in any form. I have had a fearful experience with it. It affected my mind to that extent that I was forced to quit my trade. I quit its use, but it took a long time to get over its evil effects. I look upon you as a benefactor to the human race; and may your life be spared beyond the ordinary length allotted to us.

F. M. JEFFREY.

Waynesville, Ill., Feb. 20, 1890.

I am thankful for the Tobacco Column and the influence it is exerting for good in that direction. It seems to me that one of the greatest services of Christianity, properly applied, is to lift men and women out of every kind of uncleanness and bondage to injurious physical habits, "so that, whether we eat or drink, or whatsoever we do, we shall do all to the glory of God."

C. F. PARKER.

Mentone, Ala., Feb. 7.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1890.

And one of the elders answered, saying unto me, What are these which are arrayed in white robes, and whence came they? And I said unto him, Sir, thou knowest. And he said unto me, These are they which came out of great tribulation, and have washed their robes, and made them white in the blood of the Lamb.—REV. 7: 13, 14.

AN APICULTURAL INSTITUTE.

OUR friends in Germany have struck upon quite a novel method of imparting a practical knowledge of apiculture. Beginning on the 8th of next April, and continuing 10 days, Prof. H. Strack, at Flacht, Germany, assisted by several of the most eminent bee-men of that country, will hold what we might call a convention, in order to illustrate practically modern apiculture. The lectures will be fully illustrated by the use of about all the implements in bee culture which are mostly used to-day. We notice the name of C. J. H. Gravenhorst among the helpers of Prof. Strack. We are of the opinion that such an institute in this country would go far toward illuminating the minds of the "old fogies," and diffusing more widely a general knowledge of our industry.

SENDING ALFALFA FROM COLORADO TO NEW YORK CITY.

We take the following from the *Denver News*:

The shipment of a carload of baled alfalfa from Rocky Ford to New York is a matter of no small import to Colorado. The freight is \$180, but even at this rate the alfalfa will cost but \$19 a ton at New York, as against \$18 to \$20 for timothy. The shipment is an experiment for the purpose of feeding milch cows, little being known practically of the value of alfalfa as a fodder food for cows. It is also a fact that Messrs. Dye & Son, of Rocky Ford, last week shipped \$10,000 worth of alfalfa seed to New York, a large amount of seed being produced about that town. Whether alfalfa can be as successfully grown in New York State as in Colorado is a question, since the plant is indigenous to high, dry climates. With a more favorable freight rate, however, the *News* is not afraid to guarantee that Colorado is able to produce all the alfalfa which New York may be able to consume, and if a trade of this kind can be opened and maintained it will be of the largest possible benefit to the farmers of our State.

Such items are interesting to bee-men, because it indicates to what extent alfalfa may ultimately be grown.

"STEPPING HEAVENWARD."

ON my recent trip to Wisconsin I discovered, at my first place where I had to wait for a train, that I had not only missed taking along some reading-matter laid out for the purpose, but I had also forgotten my eye-glasses. I soon replaced the latter, and looked into a bookstore to see if there was any thing there I wanted in the way of reading. My first thought was, that I should not care for any thing they had. Pretty soon, however, conscience rebuked me for my selfishness; and then I said

mentally, "Lord, what hast thou for thy servant to do during these coming two hours?" Almost immediately, by way of answer, as it seemed to me, my eye fell on a paper-covered book with the title at the head of this. I read the book years ago; and after our good friend Anna B. Quillin recommended it so highly I at once decided to read it again. Here was the opportunity. It was a good-sized book, fully as large as these pages, double column, closely written matter of 112 pages, illustrated by toward a dozen appropriate pictures. When the bookseller said the price was 25 cents I mentally thanked God that somebody had thought it to put the book in this cheap form for the great reading public. Before the two hours were up I felt that the prayer was already answered. God had shown me how I could help and benefit you all by recommending and scattering widely this work. The publishers have sold me 100 copies for \$15.00. I propose to furnish them to you at 18 cents each. Three cents will a little more than cover the cost of freight, wrapping up, mailing, etc. If wanted by mail, 22 cents each. Now, friends, after you have read the book, and been helped in your struggles on the way from earth to heaven, recommend it to your friends and neighbors—lend it right and left until the book is worn out. What more worthy work can any human being be engaged in than assisting his fellow-men in their struggles and trials in "stepping heavenward"?

APICULTURE AT THE PARIS EXPOSITION.

A FRENCH journal published at Amiens, France, entitled *Le Rucher* (*The Apiary*), for February, comes to us devoted entirely to the display of apicultural implements at the late Paris Exposition. The countries represented were Austrian Hungary, Belgium, Spain, United States, Great Britain, Greece, Italy, Duchy of Luxemburg, Mexico, Roumania, Russia, and Switzerland. Concerning the display from the United States, we translate from the columns of *Le Rucher* the following, which, if coming from an American journal, would not look well; but under the circumstances we will try to overcome our natural modesty and let our readers know what the friends in France think of us as beekeepers and as manufacturers:

The collective exposition of American bee-keepers, under the direction of Messrs. C. V. Riley and N. W. McLean, is the most important of all, and, at the same time, that which teaches the greatest lesson. The hives exhibited are, principally, masterpieces in combination and execution. Open them, and see if any thing is left to be desired; see what admirable joinery! how every thing fits together, and how easily it is taken apart! how smooth the wood is, and well planed! One stands confounded in the presence of this material made of wood. And note well that all the hives that go out of any one factory are scrupulously like those shown at the exposition, for a great part of the pieces which compose them, if not all, are made by special machines, as one might well suppose, working always in the same manner. There are in America immense factories for making hives and apicultural implements, which have in their work-rooms all kinds of machines, which can not be found in France, of which the daily output, astonishing to us, gives a vivid idea of the advanced state of apiculture in the United States. Thus, for example, the factory of Mr. A. I. Root, in Medina, O., not to mention others, contains machinery moved by a 92-horse-power engine. It can make daily from 25,000 to 50,000 sections and 1000 hives, without counting an enormous quantity of other work. This establishment sends out daily a carload of goods, and in the busy season a carload and a half. Forty years ago bee culture did not exist in the United

States; but to-day it is far ahead of that in any other country. It must be mentioned, however, that this relatively rapid development is favored by the honey resources of the country, which are considerable. I must add, that the American exposition is, so to speak, a triumph for movable-frame apiculture, and that those bee-keepers who did not visit the exposition lost much.

THE DOVETAILED CORNER.

MR. FRANCIS DANZENBAKER, of Washington, D. C., has just placed an order with us for 1000 of his Dual hives, the same being dovetailed at the corners. The hives take the crosswise L frame, the upper story being telescopic, shutting down over the lower. Mr. Danzenbaker, it will be remembered, is the one who first called our attention to the dovetailed corner, and in a small order he placed with us a year or so ago he demonstrated the possibility of making a neat and beautiful dovetailed hive-joint. Mr. D.'s advertisement appears elsewhere, and we take pleasure in saying that he is fully competent to do all he agrees. He will leave us a few hives, to accommodate some of his customers who may prefer, on account of freight rates or otherwise, to order direct of us.

SPECIAL NOTICES.

H. A. MARCH'S JERSEY WAKEFIELD CABBAGE SEED.

When we bought over 20 lbs. of stock seed of H. A. March, we thought we should have enough to supply our friends for at least two years. There has been, however, such a great demand for March's stock seed that we are already sold out, and the best that we can do for our friends is to give them March's ordinary Jersey Wakefield. As this, however, is probably equal to any thing in the market, we think no one will be disappointed. We have, however, still about 25 lbs. of March's Fottler's Brunswick stock seed; and as the season is getting well along for the Wakefield, the above will probably answer just as well, or better. In making your orders, please remember that the only stock seed we can now furnish of March's growing is Fottler's Brunswick.

COMB FOUNDATION AND BEESWAX ADVANCED.

We are compelled again to advance the price of comb foundation, because of the advance in beeswax. This has been slowly increasing in price for two years past, with slight fluctuations. We have to pay now, on an average, 4 to 5c. per lb. more for wax than we did two years ago. We dislike to raise prices, and have been holding off, working on smaller margins, hoping wax would go no higher; but it is impossible longer to sustain catalogue prices. We will pay for average wax, delivered here, 24c. cash, 27 in trade, and the same will be sold at 30c. per lb. for average, and 35 for selected yellow. Price of all grades of comb foundation is advanced 5c. per pound, and the revised table is as follows, taking effect to-day:

Packed in neat boxes, with tissue paper between every two sheets.	Heavy brood 4 to 6 ft to lb	Light brood about 7 ft to lb	Thin surplus about 10 ft lb	Extra thin about 12 ft lb
1 to 10 lbs. per lb.....	45	48	55	65
10 " 25 " ".....	44	47	54	64
25 " 50 " ".....	43	46	53	63
50 " 100 " ".....	42	45	52	62
100 " 200 " ".....	41	44	51	61

NEW HONEY-EXTRACTORS READY.

Last November we announced, in this column, a number of improvements, anticipated in the construction of our Novice Honey-Extractors. The improved machines are now ready for delivery. To repeat, the improvements are as follows: The honey-gate is increased in size from 1½ inch bore to 1½ inch. The can is made entire (except bottom) of one sheet of IXX tin, instead of IX tin as formerly. The can is 2 inches deeper, allowing the revolving

frame to be set lower; thus preventing honey from going over the top edge. The correct price, as given in our 1890 catalogue, is \$7.00 each for Nos. 1, 2, 3, 4, and 5; \$7.50 for No. 6, and \$8.00 for Nos. 7, 8, 9, and 10. With 60 lbs. room below, 50c extra. With 100 lbs. room below, \$1.00 extra. Any of the number will be furnished with the upright gear, instead of the Novice, for 50c extra.

THE VAN DEUSEN REVERSIBLE FRAME.

On page 514, 1889, we described and illustrated the VanDeusen metal-cornered frame, more to find out whether there was a demand for such a frame than any thing else. Since that time there has been considerable of an inquiry; and it is only within the last few days that we have been able to supply them. They are reversible and at fixed distances, and can be handled about as easily as the metal-cornered frames and more easily than the all-wood suspended frame on wood rabbets. In the opinion of your humble servant, Ernest, this is the best fixed frame he has yet seen. Allow me to say, as I have already said, do not be too enthusiastic, and purchase a large quantity. Try a few, to see whether you like them. We can furnish the frames complete, with reversible corners, in the flat, at \$2.50 per 100, or \$22.50 per 1000; the same put up, per 100, \$3.00. These frames have wide and thick bottom and top bars. The reversible corners themselves we will sell for 30 cts. per 100; in lots of 1000, less 10%; but to use them satisfactorily they must be let into slots in the end-bar, and the wood part of the frame must be constructed specially for them. These reversible frames may be used in all Dovetailed hives—in fact, in all Langstroth hives having unbeveled edges, by nailing a piece of strap iron or tin on the bottom inside edge of the hive. By the use of L tins they may be used in the Simplicity. They are a standing and not a hanging frame.

AIDS TO THE EYESIGHT.

Since I have been obliged to use spectacles almost constantly while reading, I have taken special pains to test glasses of different values. And now while I have a pair of spectacles with gold bows that would ordinarily retail for eight or ten dollars, and a pair of the best eye-glasses that would sell for from five to eight dollars, after careful and repeated tests I am sure I can see just as well with the eye-glasses that are to be seen on our ten-cent counter. Very likely it is owing somewhat to the fact that my eyes are good and strong, having no trouble except the ordinary elongation of the focus, from age. The matter that I have spoken of before often surprises me; namely, that spectacles are cheaper than lamp-oil. In going to the greenhouse mornings I can see where the thermometer stands, in two ways. One is by lighting a match and bringing more light on the subject; and the other is by the use of my ten-cent eye-glasses. This, of course, occurs when it is almost light enough for me to see with the naked eye. A great many times, when reading your kind letters I find I have to do one of two things—light a lamp or get out my eye-glasses. By the aid of these cheap eye-glasses I can read just as easily as I ever did in my life. The principal point, however, that I want to make to-day is this: I can not find these cheap eye-glasses advertised anywhere in our catalogues. They are nicely arranged in a neat little drawer made for the purpose, divided off so as to have different ages by themselves, and yet there they have stood for years, for aught I know, having a very limited sale, because nobody knows we have them. If you want a case to go with them we have some very pretty leather ones for only five cents more; but I prefer to use mine without the case. I simply put one in a little pocket in every one of my coats. This little pocket is right above the large one on the right side, and is sometimes called the "railroad-ticket pocket." With an eye-glass in the pocket of each coat, I feel quite happy and independent. When any thing comes up suddenly anywhere, I can get my finger on them in a twinkling, and if they are lost I am only 10 cents "out of pocket." If wanted by mail, send 3 cts. extra for postage and packing.

WIRE NETTING ADVANCED.

We hereby cancel all prices made on wire netting previous to this date. The prices on the inside cover page of this number were printed before we were advised of the advance; hence they are null and void. New prices are as follows: On 2-in. No. 19

netting, 4 ft. wide (the regular poultry size), add 75c per roll, which will make the price for less than 5 rolls, \$4.75 per roll; and for single rolls shipped from New York or Chicago, add 25c for cartage; 5 to 10 rolls, \$4.50 per roll; 10 to 20 rolls, \$4.25 per roll. The discount on the list prices, pages 2 and 3 of our netting catalogue, will be, for less than 5 rolls, 68½ per cent; 5 to 10 rolls, 70 per cent; 10 to 20 rolls, 70 and 5 per cent. On cottage fencing, page 3 of the netting catalogue, new discount is, for less than 5 rolls, 60 per cent; 5 to 10 rolls, 62½ per cent; and 10 to 20 rolls, 65 per cent. No change in price of web fencing at present.

The reasons for this advance are, briefly, as follows: Wire rods, from which the netting is made, were, till about 6 months ago, nearly all imported from Europe. Since then the price of wire rods has advanced so much that American rods are largely used, but at an increased cost to makers of netting, of about 40 per cent. Notwithstanding this increased cost of materials of 40 per cent, we advance the price of netting only from 15 to 20 per cent. We regret (for the sake of those who buy netting) to be obliged to advance prices; but there is this cheering feature about it, that, instead of importing wire rods, we are using those produced by American workmen, and thus indirectly furnishing employment to many hundreds of our fellow-citizens.

Those who have a netting catalogue may have a new discount sheet on application. If we knew who you were we would mail you one any way.

March 5, 1890.

FOR SALE.—World type-writer. Little used, \$4 80. W. W. CULP, Pottstown, Pa.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD, 4-9db BIRMINGHAM, JEFF. CO., ALA.

McLane, - J. E. NEYLAND, - Erie Co., Pa.

Breeder of choice Red Caps and Andigoloes eggs, \$3.00 per 15. Golden Wyandotte's and White Plymouth Rock eggs, \$2.00 per 15

-In responding to this advertisement mention GLEANINGS.

PURE P. ROCK EGGS, \$1.00 PER SETTING OF 13. For Sale by L. C. AXTELL, Roseville, Ill.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON, CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention *Gleanings*.) Iftdb

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

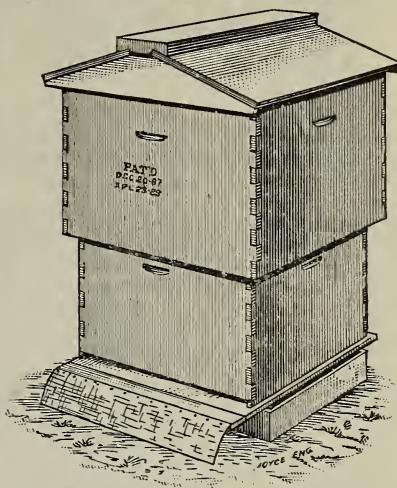
Black queens, 3 for one dollar; also a few hybrids. Iftdb H. FITZ HART, Avery P. O., Iberia Par., La.

WANTED.—Black and hybrid queens. GEO. H. GRACE, Perry, Iowa.

FOR SALE.—10 mismated Italian queens at 50 cts. each. S. H. COLWICK, Norse, Texas.

THE DUAL HIVE.

A PERFECT OUTDOOR WINTERING HIVE.



SWARMING ABSOLUTELY MASTERED.

The Original Dovetailed Hive

Is made of **SELECTED LUMBER**, light and strong. The frames fit either body if used as two separate hives for increase.

As shown above it holds 20 brood-frames for extracting, or 13 brood-frames and 28 1-lb. sections, or as I use it for comb honey, 9 brood-frames and 42 1-lb. sections.

Top-bars of frames are ¾ in. square, do not sag. Sections are spaced so as to exclude the queen, and prevent the building of burr-combs or propolizing **WITHOUT** using honey-boards of any kind.

FOR SHIPPING, 9 frames, 3 cases, 21 sections, all put up with starters, 3 cases, 21 sections in the flat. Vestibule swarmer will pack in the brood-hive, which is put snug in the outer hive, and billed as nested hives, with gable roofs, or box stuff with flat roofs, **SAVING HALF** the freight.

FOR WINTERING, the brood hive is wrapped and covered air tight with paper, and the outer hive passed down over all, forming several dry-air spaces between double walls; will winter bees as well or better than a chaff hive. One complete hive, painted, weighs 25 lbs., and can be sent alone as **CHEAP** by **EXPRESS** as by freight.

FIVE hives in the flat weigh 100 lbs., and cost **NO MORE** than one by freight.

No hives will be sent in the flat except to those who first buy one hive made up.

One hive, made up and painted, ready for bees, as I use it, with 42 sections and starters for the same, and one book..... \$ 3 50

Two hives, furnished the same, and one book 6 00 Not painted, 25 cts. less. Gable roofs, as shown in cut above, 25c more for each hive nailed.

One smoker (can be shipped with hive)..... \$ 50

5 hives in the flat, with glass and nails to put up, 10 00

One hive nailed up, not painted, as sample with

cover..... 2 50

Vestibule swarmer, and 1 book—the "Bee Key." 50

Gable roofs in flat, cost 10 cts. more for each hive.

My book teaches how to **PREVENT** the building of drone comb in the brood-nest without using foundation; **HOW** to control swarming **ABSOLUTELY**, **WITHOUT** caging or clipping the queen; how to make more by producing comb honey than **Extracted**. Will be ready in three weeks. Price 25 **CENTS**, which will be refunded every time for the book, if any do not think it worth the money.

Order early to receive them from stock in hand. Later orders may be delayed in getting them out in the busy season.

Cash **MUST** accompany all orders. Send by registered letter, P. O. money order, or certified checks to order of **F. DANZENBAKER,**

1301 K St., N. W. Washington, D. C.

When more convenient, to A. I. Root, Medina, O.

BURPEE'S SEEDS BEST

ARE THE

It is possible to produce by constant, most critical care, and are **WARRANTED**,—few equal and none better. Handsomely illustrated CATALOGUE, with colored plates painted from nature, of **RARE NOVELTIES** of sterling merit, mailed **FREE** to any address. **W. ATLEE BURPEE & CO., Philadelphia, Pa.**

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1421 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE, REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

CHAS. DADANT & SON,
HAMILTON, HANCOCK CO., ILLINOIS.

In responding to this advertisement mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at \$5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-aparies. Ship in April or May.

W. E. YODER,

4tfdb LEWISBURGH, UNION CO., PA.

In responding to this advertisement mention GLEANINGS.

Japanese Buckwheat, 60c Per Bush.

Alsike clover seed, \$7.00 per bush. No. 1 one-piece sections, \$3.00 per M. Extra nice foundation, thin, 50c per lb.; brood, 45c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free.

22tfdb

W. D. SOPER.

Box 1473.

Jackson, Mich.

\$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with
Tested Queen, or 5 for \$25.00.

In Simplicity or L. 10-frame hives; 250 colonies to 4-9db draw from. Address

JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES, POLAND- China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address

N. A. KNAPP,
Rochester, Lorain Co., Ohio.

4tfdb

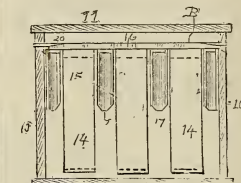
SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. **F. B. MILLS, Thorn Hill, N. Y.**

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,
Nappanee, Ind.

In responding to this advertisement mention GLEANINGS.



By the use of my improved spacer, an ordinary hanging frame hive is converted into a reversible or movable hive. A hive is quickly and correctly spaced, and the frames are held in their proper position, and will not be lifted when removing the cover if they are fastened

to it by brace-combs. A contracted hive is made movable or invertible. In adopting this, it requires no change in a hanging-frame hive.

Price of Brood-Chamber and 8 frames.....\$1.50

One Hive and 1 doz. extra spaces 4 00

In ordering state what frames you use, and give the width of your hive, inside. 6-11db

J. B. WILCOX, - - MANISTEE, MICH.

In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT \$1,
and 4-frame nuclei at \$3.50, after May 1st.
Send in orders now.

4-10db

S. J. WAKEFIELD, Autreville, S. C.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db

NEW LONDON, Waupaca Co., WIS.

In responding to this advertisement mention GLEANINGS.

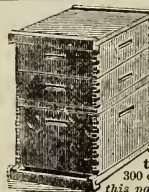
BEE-KEEPERS' SUPPLIES.

We are prepared to furnish bee-keepers with supplies promptly, and at greatly reduced rates. Estimates gladly furnished, and correspondence solicited. Our goods are unexcelled in quality and workmanship.

Italian Queens and Bees at a very low price. Send for large illustrated price list, free. Alley's Queen and Drone Trap and Swarm Hiver always on hand.

A. F. STAUFFER & CO.,
Sterling, Ill.

20tfdb



BEES AND HONEY

The Dovetailed Strongest, Best and Cheapest BEE-HIVE for all purposes. Please everybody. Send your address to the **Largest Bee-Hive Factory in the World** for sample copy of **Gleanings in Bee Culture** (a \$1 illustrated semi-monthly), and a 44 p. illustrated catalogue of **Bee-Keepers' Supplies.** Our **A B C of Bee Culture** is a cyclopedia of 400 pp., 6x10, and 300 cuts. Price in cloth, \$1.25. Mention this paper.

A. I. ROOT, Medina, O.

GLEANINGS IN BEE CULTURE.

Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, *postpaid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.	
8 Bible, <i>good print</i> , neatly bound.....	25
10 Bunyan's Pilgrim's Progress**.....	35
6 First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50c. Two copies will be sold for 75 cents. Postage six cents each.	
5 Harmony of the Gospels.....	35
3 John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*.....	10
1 Gospel Hymns, consolidated Nos. 1, 2, 3 and 4, words only, cloth, 10c; paper.....	05
2 Same, board covers.....	20
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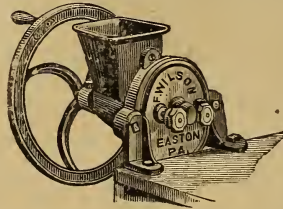
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